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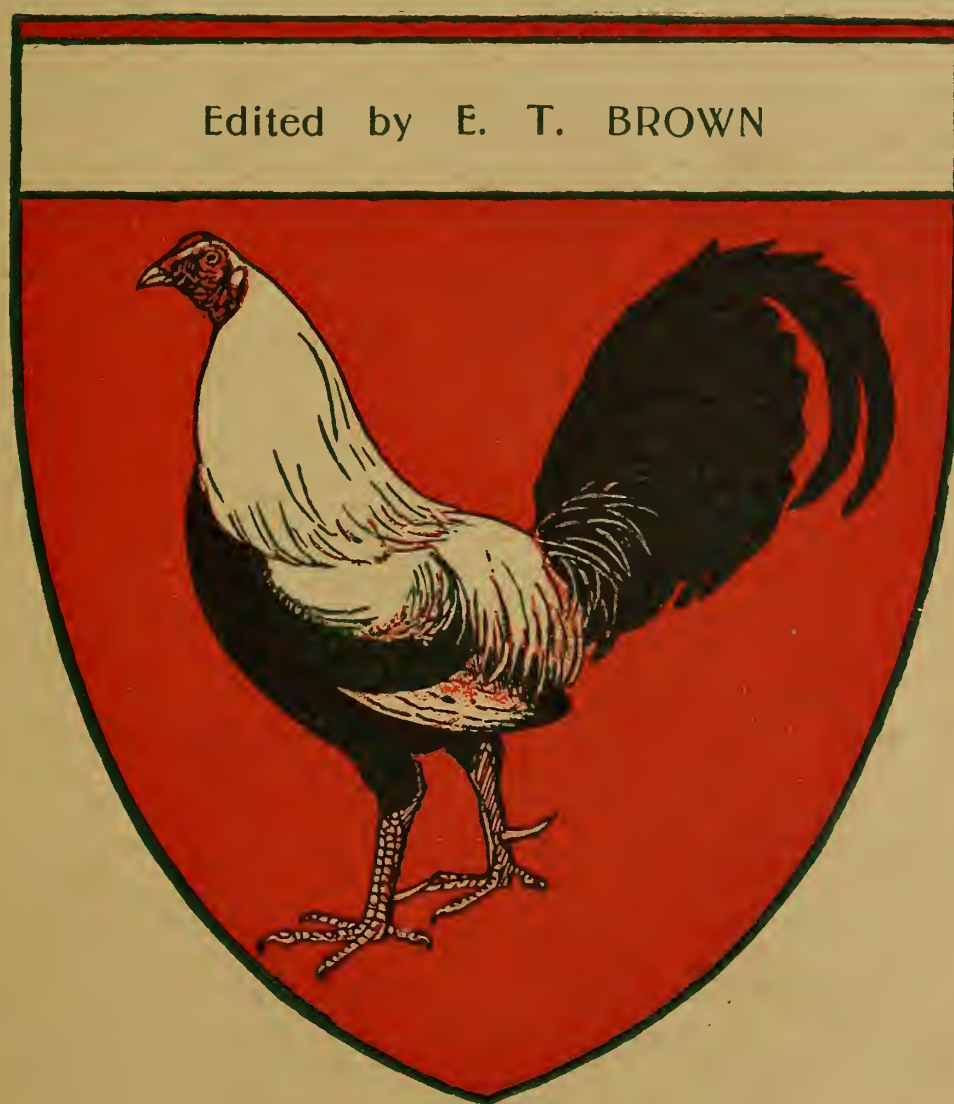
THE
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MARCH, 1914.

VOLUME VI.



MONTHLY

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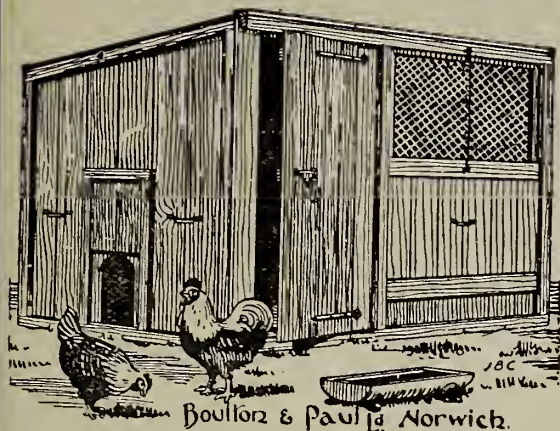
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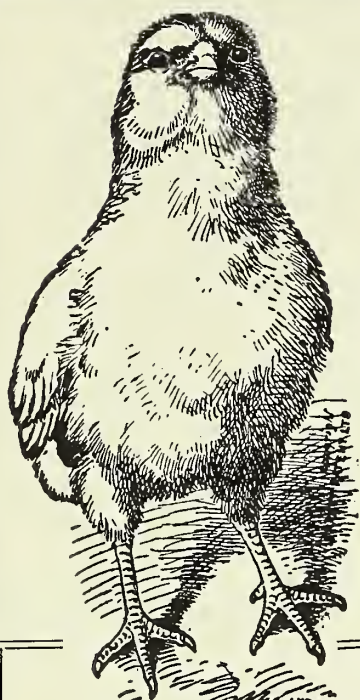
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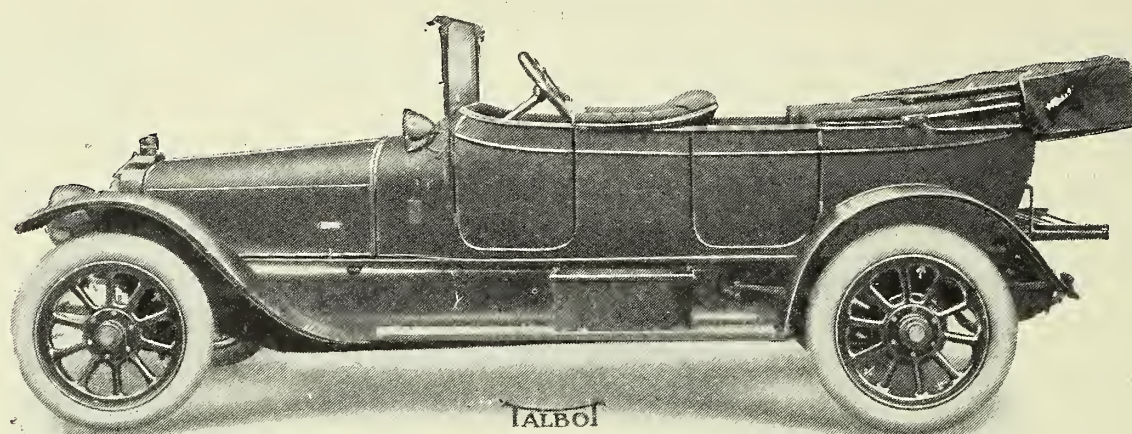
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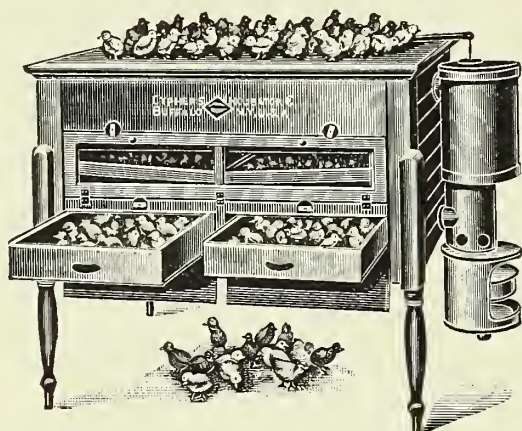
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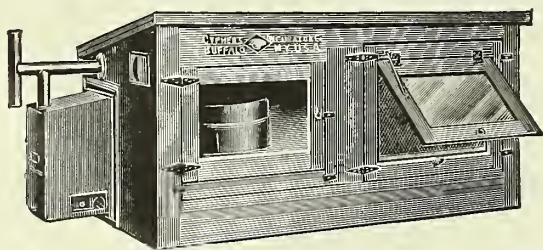
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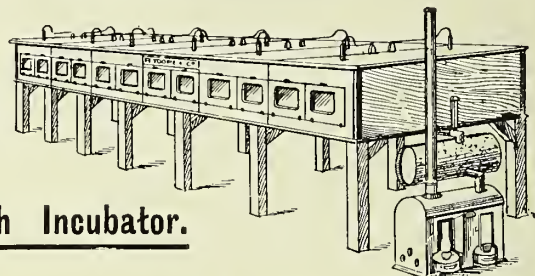
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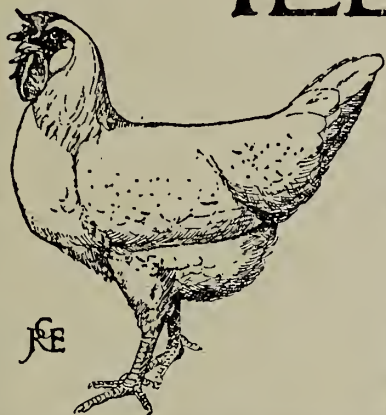
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The Editor would like to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

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The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

The Methods of the A.O.S.

Before making any comment on the resignation by Mr. Edward Brown, F.L.S., of his association with the Agricultural Organisation Society, and respecting the correspondence which we are enabled to publish *in extenso* this month, we desire to explain again that Mr. Edward Brown is not and has never been Editor of the "ILLUSTRATED POULTRY RECORD," and has no connection with it save as a contributor. This has been made clear before, but many people still confuse the two personalities.

The letters we publish tell part of the story. They reveal a condition of affairs which is serious in the extreme. Here is a semi-public body, subsidised from the Development Fund to the possible extent of £9,000 per annum, adopting despotic methods of administration which can only have the effect of ultimately driving from the ranks of its staff every man with any spark of self-respect. On the other hand, is a man who has probably done more for the development of organised effort, and made more sacrifices in that direction than the whole of the members and officials of the A.O.S. put together. When the National Poultry Organisation Society was practically forced into amalgamation, Mr. Brown agreed for the sake of the work to which his life has been given, to accept a secondary position. Now he is driven out by the adoption of methods which are as barbaric as they are foolish. It is not too much to say that in respect to the poultry industry Mr. Brown's little finger has had, and will continue to have more influence than the A.O.S. can ever exert. The surprising fact is that the governing body of the A.O.S. should have approved these methods. The letters published show that throughout Mr. Brown was not fighting merely for his own hand, but for all occupying like positions.

What might be done.

In the interests of the poultry industry, and recognising the splendid work done by the National Poultry Organisation Society, the question arises, whether an effort should not be made to reconstitute the last named, perhaps under a slightly different form so as to continue the general work which is in danger of being lost. That would be the best solution. The joining of forces has proved to be a mistake. The Marchioness of Salisbury, President of the N.P.O.S. from its formation, whose magnificent work everyone recognises, has resigned her connection with the A.O.S., and now Mr. Brown has done the same. After what has occurred, confidence in the A.O.S. has been shattered. If Lady Salisbury and those who were associated with her took action, they would, we are confident, regain the support given to them and thus be in a position to resume the work which, unfortunately, had been transferred. What should be insisted upon is that a fair proportion of the money granted for organisation be allocated to the new society, to which would be committed the responsibility of poultry development in England and Wales. Separate societies, as proved by the experience of Denmark and Holland, are alone capable of dealing with their respective subjects in a satisfactory manner.

County Inaction.

Reference has been made from time to time to the fact that County Educational Committees have in the great majority of cases failed in their duty in provision of Poultry Instruction, and that instead of the advance which the growing needs of our people made imperative, and steady development on these lines, there has been retrogression during recent years. We are able this month to present a record which is indeed black, as will be seen by "Statistician's" article, culled from the latest Board of Agriculture report, from which it will be seen that in twenty counties of England and Wales, no Poultry teaching whatever is given, and that only in eight counties is a full-time instructor employed. One of these we think should be included in the half-time counties, but our correspondent quotes the official statement as it appears. When it is noted that in the counties thirty-six whole time instructors in Horticulture are employed, it will be seen how unfair is the discrimination between that subject and poultry, for the census of production revealed the fact that the last named represent a greater value than do fruit, etc. We do not suggest that Horticulture has any more attention than it deserves, for such is not the case, and more instructors might be employed with

advantage. Our purpose is to show the comparative position between the two.

The Harper Adams' Laying Competition.

The Report of the Twelve Months Laying Competition at the Harper Adams' College has been issued. In respect to the completeness of detail it is the best record of such competitions that we have yet had presented, upon which the College Authorities may be congratulated. We give in this issue the summarised statement sent out by the Utility Poultry Club, and hope next month to publish an exhaustive analysis of the report, together with the lessons that may be deduced from it. In spite of the many criticisms which were made as to the location, in which we did not share, and the arrangements, the competition has been an unqualified success, so far as results are concerned. "The proof of the pudding is in the eating." Perhaps the critics acted as a spur to the college staff, and in that manner have contributed to the achievement. If so they may fairly claim a share. Emphasis is laid in the report as to the educational influence of the competition. That may be read in two ways. As indication of capacity for laying on the part of hens it is to the good; if regarded as a demonstration to be adopted commercially, it is the reverse.

Points to be Noted.

Meanwhile a few of the pregnant factors which are presented in this report may be cited as suggesting food for thought. It must, however, be remembered that it was a competition, and that as to equipment and expenditure, more especially on labour, it was abnormal. The total cost of the plant was £542 2s. 4d., which for 600 birds works out at a fraction over 18s. each. The cost for labour (£144) involved a charge per hen of 4s. 9½d. Food and litter was £256, or 7s. 11½d. per head, in itself high in the extreme due to use of expensive foods, and half-a-crown more than should have been the case. Adding these two items and the expense of marketing we have a total of £430, or 14s. 4d. per hen, to which commercially would have to be added rent, depreciation of plant, and several minor charges. Again it must be pointed out that it was a competition. The total number of eggs laid was 91,115, an average per pen of 911.15, or per bird of 151.9, which is excellent. The total money value of the eggs was £431 15s., or 35s. more than the expenses named above. The highest pen record was 1,389, or an average of 231.5 per hen. The maximum laying was by a White Wyandotte, which again stand at the head, totalling 275 eggs in the twelve months. When fully dissected this promises to be the most interesting competition of the series.

An Anglo-American Poultryman.

The death is announced, at the ripe age of 83, of Mr. Henry Hales, President of the American Dorking Club, of whom Mr. Franklane L. Sewell writes a very warm appreciation in the *Reliable Poultry Journal*. From this we learn that Mr. Hales, whose name as a veteran poultryman has long been known to us, was born at Yarmouth and did not cross the Atlantic until he was 24 years old. He was a painter by trade, and had worked in London, at Knebworth, Herts and elsewhere. One quality which he carried to the Western land was a love for poultry, as he had been a breeder of White-faced Spanish and Sebright Bantams. That would be when the poultry industry was making its first bid for recognition, and shows were meeting with great popularity. In America, Mr. Hales took up the Dorking as far back as 1869, and has bred them ever since, winning with a Silver Grey at the last Boston Show. As Mr. Sewell states: "Mr. Hales was one of the first to help organise an exhibition in the interests of poultry, and he kept his interest in fine fowls to the last, even after his eyesight could not discover the details of their plumage."

"Baby" Chicks.

A few years ago no one would have dreamt of the growth of trade in day-old chicks, such as had marketed the last two years in the United Kingdom and other countries. What is of even greater importance is the undoubted fact that the possibilities of development are enormous, probably far and away beyond the anticipations of the most ardent. This is another example of how one advance opens avenues for others. Had it not been for the inventiveness of M. Rouiller, in France, and Mr. Chas. E. Hearson, in this country, as applied to artificial incubation, making this method practical to the average poultryman, such result would not have been possible. To those gentlemen, therefore, recognition is due. Whatever rewards they have reaped from their business enterprises have been well earned by the service rendered to the industry. Without incubators the day-old chick trade as we know it now could never have been. As the object of all concerned must be to place the branch on a permanent basis, in order that it may grow to a greater extent, we commend what is set forth in the present issue. The experience gained shows that there are dangers to be avoided, some of which could not be anticipated, and were only revealed as a result of extended and extensive operations. Study of the issues raised is important. That the problems can be solved we have no doubt whatever. In this case, as in many others, to be forewarned is to be forearmed. The way of success is not extent of operations, but that

these to the minutest degree shall be on a sound foundation.

The Smallholder and his Poultry.

That within recent years the greater amount of attention has been given to egg production, in such efforts as have been made for development of the poultry industry, is evident. For this two reasons can be adduced, namely, that the demand for and prices of eggs have advanced to a greater extent than for table poultry, and that keeping fowls for eggs is a less highly specialised business than is the other branch, and within the compass of the farmer, large or small, or the small man, until he has gained experience to a greater extent than is general. That does not mean, however, where knowledge and ability are available, the production of chickens and ducklings for market is outside the scope of the smaller occupier, for such is not the case. The fact is his conditions lend themselves in an especial manner to this side of the work, as shown by what has taken place for generations in Sussex and the adjoining counties, where a very large proportion of the chickens are raised on small places. The same is, also, true in the duck districts. What, therefore, should be attempted is promotion of this business in all suitable districts on similar lines to which end instruction in the methods which have proved successful elsewhere, is essential, together with dissemination of information and demonstration. We have passed the era when generalisation is enough. What we now want is more definite exemplification of what can be attempted under the conditions named.

Consumers v. Producers.

Mr. L. C. Chiozza Money, M.P., in the *Contemporary Review* calls special attention to the disproportion between the number of those engaged in food production and other industries. He shows that against 2,500,000 persons employed in agriculture, using that term in its widest sense, there are 8,000,000 employed in industries, additional to which latter would be professions and the leisured class, so that the margin between producers and consumers of food would be even greater. Here we have an explanation of the rapid increase of prices within recent years, making for impoverishment of the people. Unless and until the balance is redressed the tendency will be to enhance the cost of living. A further point to which this writer calls attention is the expense of distribution, which he estimated for all classes of trade as equal to four hundred pounds sterling per annum. What we want, therefore, are, first, an increase of producers and of production, and, second, a simplification of the methods of distribution.

THE TRADE IN NEWLY-HATCHED CHICKS.

Its Possibilities and Dangers.

By EDWARD BROWN, F.L.S.

ACCUMULATION of experience in all branches of the poultry industry, as in every department of human life, reveals questions demanding consideration which had not been anticipated. Many examples could be given in proof were these necessary. Such are within the observations of everyone. Not until operations are continued on a larger scale and over an extended period, do we find out the weak places. Such need be no discouragement to the earnest worker, for he should find in these the stimulus to more strenuous effort, and the attainment of greater success. My present purpose, therefore, is not to raise difficulties or to check enthusiasm, but to state problems which present themselves as a result of the growth of the trade in day-old chicks, the solution of which will make for a larger degree of success than yet achieved, and enable the possibilities of its extension to be realised.

In the POULTRY RECORD of February, 1910, (Vol. II., page 236) reference was made to the evolution of this business, and the methods which have been adopted in connection with it. The time has arrived, in the light of extended experience, for other aspects of the question to be considered, otherwise there may be a check to its development. What we desire to attain is the adoption of methods which make for permanency in this as every phase of the industry. Too often do we find systems in vogue which succeed for a time and then fail by disregard of natural influences. That this result can be avoided I have no doubt whatever. "Where there is a will there is a way," but the will must be inclusive of knowledge.

One of the most important questions presenting itself is the maintenance of virility and vigour of constitution in domestic poultry. That is by no means a new problem. Within my own remembrance it has demanded attention at two if not three periods. Perhaps it may be of greater import than ever before, owing to special circumstances, and to the methods which are increasingly adopted. We must ever remember that domestication is always more or less abnormal and artificial, that the tendencies are ever in the direction of lessened vigour. Only by constant and rigid precautions can this be prevented.

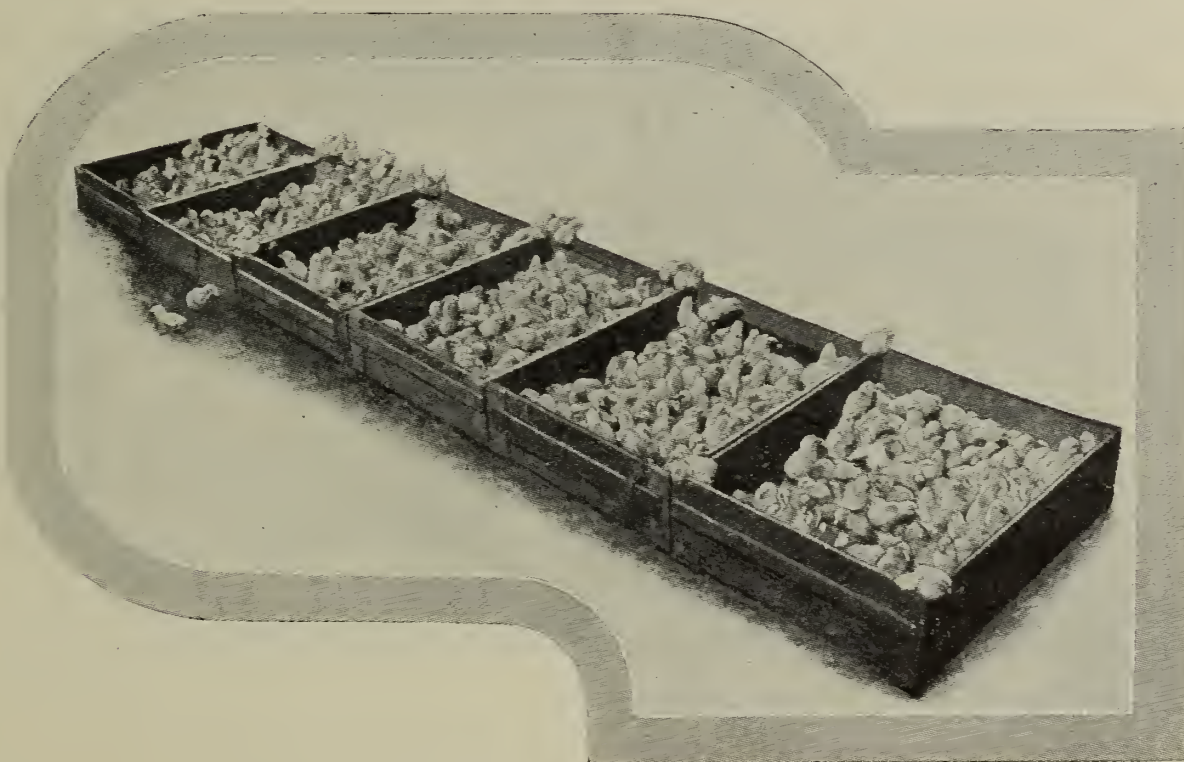
Whilst it may be accepted that young chicks have a reserve of strength, which at one time was not thought possible in such tender creatures, it is evident that there are great

variations in this direction, and that unless steps are taken to ensure strength as far as possible, the risks are considerably enhanced. The sending of birds on journeys involving several hours must involve strain upon the system. How far they are able to withstand these influences is determined by the vigour possessed by them at the time of hatching. This business has taught us much. One of the leading lessons is that they do not require coddling, which formerly was regarded almost as a necessity. My own view is that there are resultant benefits from the compulsory change of environment, and that the newer conditions make for more rapid growth. At the same time these must not be carried too far, and the power of adaptation requires to be inherent. Unless, therefore, each individual chicken has within itself a large measure of reserve strength, it cannot bear the strain put upon it. The question is one which concerns purchasers of day-olds. They do not alone want to buy live, but liveable chicks, with the capacity for growth if given an opportunity. It is equally important to the sellers, who will assuredly find their trade decrease unless they send out birds that will meet all reasonable expectations of their customers.

What we have, therefore, to consider, in the first place, is the parent stock, for upon these rests the responsibility of transmitting the essential factors to their progeny. Much will depend upon the conditions under which the breeders are kept. As was pointed out in the article already referred to the most satisfactory results are obtained where the hens producing the eggs are at liberty, living even under the more exposed conditions which are conducive to development of hardihood. That is always true, becoming of even greater importance when the chicks require in a special manner to be vigorous. Several striking examples have presented themselves showing that to hatch eggs from closely yarded birds is undesirable for this purpose, and that, at any rate after two or three generations, the effects are most marked. For that reason I feel confident that the future of the day-old chick business will be mainly in the hands of operators who are in a position to obtain eggs from hens kept under the conditions named, either owned by themselves or others. Preferably it is desirable to hatch only on the place where the eggs are produced, for that ensures absolute control,

fresh condition when incubated, and discrimination as to the birds from which they are obtained. Moreover, travelled eggs are less satisfactory than those not knocked about in this manner. Such arrangements, however, are not always possible. Where eggs have to be bought the greatest care should be taken in respect to all the points stated. In several cases which have come under notice, it has been evident that the producers of eggs sold to these hatcheries, not having the responsibility during the incubatory period, were careless, and did not always send eggs as represented. Common mongrel eggs may be treated in this manner, but with others the effect is serious. It is not enough to buy eggs any and everywhere as is too frequently imagined.

necessarily be much higher, I question whether these would be found amenable to the system of selling at that stage to anything like the same extent for the reasons stated. Therefore those who are taking up this trade should pay the utmost attention to selection for breeders only those birds which are manifestly the more vigorous and active. That is always within their control so long as they own the breeders themselves. Where they are compelled to purchase eggs, in justice to their clients and themselves, that should only be done when satisfied to the same degree. In organising such a business, therefore, it would be a wise expenditure of time and money to personally inspect all flocks of birds from which eggs were to be obtained, and to pay adequate prices for



"Twenty-four hours old."

[Copyright.]

There is, in this connection, a further question, apart from the contributory influence of environment, namely, the vigour of the producing stock. To expect strongly fertilised eggs and vigorous chickens from enfeebled parents is against all experience. Those who have done most in this business state that chickens of some breeds stand the travelling better than do others, and that it is entirely a question of natural strength. Such being the case the supreme importance of hardy, well-matured parents will be apparent. As I have previously pointed out the trade in day-old chicks is entirely with utility stock. Apart from the fact that there is really no demand for fancy-bred birds, the price of which would

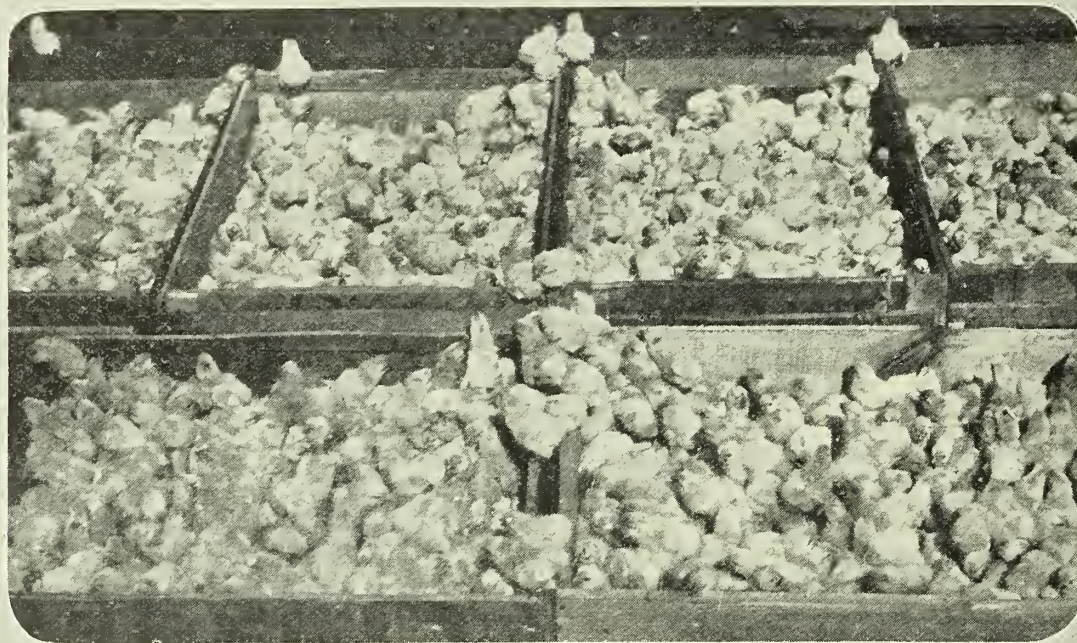
such eggs. Too often cheapness is the main desideratum. In this case low price may be false economy. There are other questions, such as feeding etc., which enter into consideration, and have a contributory influence. These, however, need not be enlarged upon, as it is not so much in those directions that the trouble arises with which we are now concerned.

One important factor is the age of the breeding stock, and it is here where lies the chief danger we have to avoid. It is generally admitted in this and other countries that breeding from yearling males and females is a mistake, in that there is a distinct loss of vigour, not, perhaps, to any serious extent in one or even two generations, but if continued successively on

these lines. That is the case even where the birds are of the hardier strains and breeds. The experience of larger breeders shows that chickens bred from hens in their second or third year are better than those hatched from the same birds when yearlings. That is in conformity with observations and experiences in other classes of animals, and what might be expected. Functional activity does not indicate that the period has arrived when the highest type of progeny can be obtained. In fact the one anticipates the other to a considerable extent. So much is this recognised that many of the most careful breeders do not use the yearlings except for

say that the chicks are from pullets' eggs, leaving to them the responsibility for whatever may result, if they are willing to assume it. Again may it be stated that if such a plan were adopted for one year only not much harm would be done. It is the continuance of such a system season after season which by the accumulation of influences brings so many evil results in their train. Moreover, we have to remember that a plan which may be adopted for birds to be reared where hatched is not desirable when they have to bear the strain of travelling at an early age.

Further, breeding from closely related parents will have the same effect. In spite of all that



A batch of nearly five hundred newly-hatched chickens.

[Copyright.]

egg production, or to produce chickens which are to be killed at an early age, when no harm is done. In the case of hatching chickens for sale as day-olds there is a temptation to ignore all such restrictions, which ought to be strenuously resisted, as it cannot fail to be highly injurious, due to the fact that the more mature hens are usually later coming into profit. When eggs are scarce and there is a demand to be met, the fact that pullets are laying leads to use of their eggs when the doing so is known to make for degeneracy. I am confident that many of the complaints received as to weakness and death of chickens arises from what is here set forth. Where that is done it would be only fair to the purchasers to

has been and is being said on this question, I prefer to accept the evidence of practical experience as to the evil influence of in-breeding, which should have no place on the utility side of the poultry industry.

The day-old chick trade was created by and is dependent upon artificial incubation, without which it could not have developed to the extent which has taken place. Here, again, is an aspect of the question which demands consideration. The fact that such methods are second best, that in spite of the remarkable advance which has been made in these valuable and indispensable machines, there is something lost in respect to natural vigour, compels especial care both as to the position in which they are

placed and the manner of operation, otherwise the slight loss of virility will be greatly increased. It is our business to minimise in every way the changes induced by departures from the natural method.

From what can be learnt it would appear that the buyers of day-old chicks up to the present have been mainly amateurs, specialists, small poultry keepers, and the newer grades of rural residents, as that the farmers of the country have to a limited extent availed themselves of this system of renewing their stocks or

enlarging their operations. If that is the case the field of development as yet untouched is enormous, and the possibilities of extension vastly greater than hitherto realised. How fast such extension will take place depends upon the receptivity of farmers to newer ideas and methods, and also to the way in which those who take up the newly-hatched chick business are able to supply liveable, vigorous, thrifty birds. A dissatisfied customer means check to his adoption of such methods, and his influence is far outside his own circle.

ARE POULTRY FARMS SUBJECT TO UNDEVELOPED LAND DUTY?

BY A SOLICITOR.

THE law has many fictions not the least of which is the assumption that every citizen is intimately acquainted with the whole of the laws by which he is governed, and it therefore follows that if he commits any infraction of them he does so at his own risk. Now to be intimately acquainted with the whole of the law is a fairly tall order, and it is therefore not surprising to find many people constantly breaking them without being aware of the fact, and what perhaps is worse many paying taxes which are demanded of them under mistaken ideas held by those who demand them. The average Briton is a law abiding creature, and when he is asked to pay taxes he assumes that they are properly and legally demanded, and if he has the money generally speaking he hands it over without more than a murmur and in this way undoubtedly many taxes are paid which ought not to be. Especially is this the case under the Land Clauses of the Finance Act, and it is not surprising to find that even those whose duty it is to collect the dues under this Act are quite incapable of correctly grappling with the complicated clauses, and, in order to be on the safe side, often construe the enactment very much against the taxpayer.

Nothing in this act is less generally understood than what are known as the undeveloped land clauses, and now that someone has propounded the theory that poultry farms cannot be taken as developing the land and that poultry farmers are liable to the payment of undeveloped land duty it may be worth while to see as far as may be what the Act says on the subject.

In the first place it may be noted that the undeveloped land duty is a yearly charge of one half-penny for every twenty shillings in

value of the site value, and it is payable by the owner and not the occupier. The definition of undeveloped land is not as clear as it might be for land "is deemed to be undeveloped land if it has not been developed by the erection of dwelling houses or of buildings for the purposes of any business, trade or industry other than agriculture, but including glasshouses and greenhouses or is not otherwise used *bona fide* for any business, trade or industry other than agriculture." Now on the face of this clause one would say that a poultry farm did consist of buildings for the purpose of trade or business, and a fowl house would certainly one would think be as much a building as a greenhouse, an advertisement board or a covered in reservoir all of which have been held to be buildings for in the words of the Master of the Rolls in the case of the *Long Eaton Recreation Grounds v. the Midland Railway Co.* "a building is not necessarily limited to a structure of bricks and mortar." The actual buildings used in a poultry farm, however, cover but a small proportion of the land used by the fowls, the major portion of the land being of course used for the purpose of giving the fowls exercise and opportunities of picking up food, and without proper adjacent land the houses are not nearly so useful. Dr. Napier in his book on the Finance Act says "apparently it is only the actual land covered with buildings (not being dwelling houses) which is exempted. For instance if the owner of a boathouse on the river, there being no attached dwelling house to bring the case within sec. 17, has a garden or open space adjacent to his boathouse this garden or open space would probably not be land developed within the meaning of the section." If this be so and even allowing that poultry pens were buildings there would still remain a large

quantity of land on a poultry farm on which no buildings were erected and which might therefore be considered as undeveloped land.

It is however arguable, and probably with success, that the land is used *bona fide* for a business, trade, or industry other than agriculture and as such would be exempt. Lord Davey defined trade as being a "business of selling with a view to profit goods which the trader has either manufactured or himself purchased," and for the purposes of this definition the rearing of chickens would probably be held to be the same as "manufactory," but the case is carried further with the definition of an industry which is defined in the Oxford English Dictionary as "systematic work or labour; habitual employment in some useful work," and this would exactly define a poultry farm.

So far we have been considering the question

land used as a market garden with a pen of fowls at one end would still remain a market garden. In other words an owner who has undeveloped land is not affected one way or the other by keeping fowls on it unless he erects pens, houses, runs, and shows conclusively that the land is used for the carrying on of a trade or business which should not be at all a difficult matter in view of the data and definitions above quoted. At the same time it must not be forgotten that some tax collectors seem nowadays to be out for all that they can grab and are such partisans instead of being as they should be simply judicial in their attitude toward questions which may arise. It is therefore unfortunately impossible to accept their views on disputed points, and in case of a demand being made on a poultry farmer for undeveloped land duty which in his opinion is



On a large East Anglian Poultry Farm.

[Copyright.]

of a poultry farm as land which is entirely devoted to the trade or industry of poultry farming and such land it seems fairly clear is not liable to undeveloped land duty. The majority of poultry keepers, however, do not set apart any special land from their stock but utilize odd corners for pens and houses and give the fowls the run over certain parts of the land. In these cases it is difficult to see how the question of development duty would arise so far as the poultry question is concerned. Land subject to development duty would not be taken out of that category merely by allowing chickens to run over it and land not subject to the duty would also be unaffected and if any demand were made for development duty it would be a question of fact more than of law. To fence a piece of waste land and put a dozen fowls on it would not cause it to be developed land. Allowing fowls to run over stubble does not cause it to be other than agricultural land and

unjust he should at once take steps to have the matter adjudicated upon, and this is to be done by giving within 30 days after the Commissioners have given notice of their assessment notice of appeal to a referee. This notice must be given on the prescribed form which can be obtained gratis from the Commissioners of the local tax collector, and it should be noted that unless it is given within the prescribed 30 days leave for extension must be obtained from the Commissioners and experience shows that this leave is not very easy to get. A further appeal lies from the referee to the High Court of Justice, but if this luxury is indulged in the services of a solicitor will probably be necessary.

[NOTE:—The above article, of course, only touches on the right of the subject, and if any reader is interested and wants further information we shall be happy to put him into touch with the writer. ED., I.P.R.]

MORE ABOUT "THE CINDERELLA OF AGRICULTURE."

BY "STATISTICIAN."

(Continued from page 214, February issue).

SO far as experimental work with a practical end in view, that is, an effort to solve problems which present themselves to poultry breeders, there is nothing stated in this report. That field is as yet not touched at all, or to a very minute extent. When we compare what is being done elsewhere and regard the importance of the question, it is evident that the need for action is abundantly manifest. The poultry research at Cambridge University recorded below cannot fail to be of the deepest interest, but does not touch questions that are pressing upon those engaged in this industry.

The following are the details of what is being done at that great institution, to which we may look in the future for greatly extended operations.

INHERITANCE OF CERTAIN CHARACTERS IN ANIMALS.

Pending the establishment of a Research Institution for the investigation of questions relating to the breeding of animals, the Development Commission have approved a small grant of £400 to be used in promoting experiments with small animals. Previous to this arrangement a special research grant was made to Professor Punnett, of Cambridge, to enable him to extend his investigation into the phenomena of inheritance. His experiments have been made on poultry and rabbits.

Poultry.—The experiments now in progress with poultry fall under three main heads, dealing respectively with (1) the inheritance of sizes, (2) the inheritance of brown-egg-laying and of broody habits, and (3) certain cases of sex-limited inheritance.

(1) This experiment was begun with a cross between a Sebright bantam hen and a gold-pencilled Hamburg cock. The F_1 birds were on the average about as heavy as the Hamburgs. In 1912, five pairs of such birds were mated together and from them about 160 birds were raised. Growth records of these birds were made during the summer and autumn, and all were kept until full grown. The weights of these F_2 birds form a continuous series, at the one end being birds somewhat heavier than the original Hamburgs, and at the other end birds as light as the Sebrights. (The sexes are of course treated separately). Some of the

heaviest and also some of the lightest birds have this year been mated up to ascertain whether they will breed true to size. Should expectations be realised, it is proposed to use such pure size strains for the analysis of the intermediate birds of the F_2 generation, in order to ascertain whether, and under what conditions, strains of intermediate size can be established as the result of crossing full-sized birds with bantams.

(2). In the experiments designed to test the inheritance of the brown egg, and of the broody habit, the breeds chosen were Brown Leghorn (non-broody, white egg), and Langshan (broody, brown egg), and the cross was made between the hen of the former and the cock of the latter breed. The F_1 hens all went broody and all laid eggs of an intermediate tint. During the past two seasons a number of F_2 hens have been reared and tested with respect to colour of egg and broody habit. The results are complex and cannot yet be said to be understood. Of about 60 F_2 hens tested, not one has been found to lay a really brown egg, though a fair proportion have laid pure white ones. Of 20-30 hens so far tested for broodiness, the majority have refused to sit.

(3). Sex-limited inheritance (*i.e.*, transmission from father to daughter, exclusive of sons, and from mother to son, exclusive of daughters) is turning out to play so important a part in poultry, that any addition to our knowledge of these phenomena can scarcely fail to be of ultimate practical value.

[In this connection attention may be drawn to the work of Dr. Pearl in America, in which he has been able to demonstrate that in certain strains of poultry high laying capacity is a sex-limited quality which the hen inherits only from her father, and that consequently the production of good laying hens depends solely upon the choice of the cock to beget them. (*cf. Journ. Expl. Zool.*, 1912.)]

Several experiments are at present in progress dealing with sex-limited inheritance.

(a) *Silver and gold plumage.*—The experiments with these characters are practically complete, and the investigators have been able to prove that, while silver is dominant to gold, no silver hen is ever homozygous. Hence a silver hen, however bred, when mated with a

gold cock, gives only silver cockerels and gold pullets. It is suggested that this may be of practical importance in such breeds as Wyandottes, where it is difficult to tell the sexes apart until at a comparatively late stage. By using silver hens and a gold cock, and taking advantage of this phenomenon of sex-limited inheritance, the sexes can be distinguished with certainty at hatching or shortly after.

(b) *Factors for pigment inhibition.*—Earlier experiments (cf. Bateson and Punnett, *Journal of Genetics*, 1911, p. 185), had shown that the Brown Leghorn carries a factor for the inhibition of endothelial pigment. The investigators have been able to show that the same breed also carries a factor for the inhibition of iridial pigment, and that this also shows sex-limited inheritance. It is probable that the same factor is concerned in both cases.

(c) The third series of experiments in connection with sex that are in progress are of a somewhat different nature. In certain breeds the cock is normally hen-feathered, *i.e.*, lacking in the characteristic saddle and neck hackles normal to most breeds. For this reason the Sebright bantam (where the cock is hen-feathered) was selected for work in connection with experiments on the inheritance of size. The nature of the case is complex, and the experiments are not yet sufficiently advanced to allow a clear statement to be made beyond the fact that hen plumage in the cock is undoubtedly a transmissible character.

COUNTY WORK.

So far as county teaching is concerned no facts are given, only a list of the Agricultural Instructors. I understand that an attempt is to be made to collate facts for future publication, and hope that these may be complete, showing what is being done, the number of classes held, and the attendances, together with the expenditure upon each subject. Then we shall know where we are, and how far county authorities are endeavouring to make up the lee-way due to their neglect in the past. Our hope is mainly centered in the Farm Institutes and Advisory Work, both of which are merely in the process of formation. The danger lies in poultry not receiving its fair share of recognition. That, I hope, may be seen to by the Board of Agriculture, for, in the main County Committees are not to be trusted, if the past history of the majority is any guide. Money from central funds is available. Will it be equitably applied? is the question. What ought to be is a properly qualified Poultry Instructor in every county, giving his whole time in the majority, and only

dividing where the area is small. Even in the least County there is plenty of work for a man or woman, and in some of the larger ones, two, three and even four would not be too many.

I have previously shown the counties where no instructor is available, and it will be well to repeat the tables bringing these up to date from this, the latest, return. Again I would say that any errors are not mine.

BLACK-LISTED COUNTIES.

In these no Poultry Instructor is named in the Agricultural Staff.

Berkshire	West Suffolk.
Buckinghamshire	Surrey
Cornwall	West Sussex
Dorset	Brecon
Durham	Cardigan
Hampshire	Carmarthen
Huntingdon	Merioneth
Isle of Wight	Montgomery
Lincolnshire	Pembroke
Middlesex	Radnor

HALF-AND-HALF COUNTIES.

Here we find Instructors either divide poultry with some other subject, or give only part time to the work, in not a few cases a very small part. In others an institution sends an instructor as he can be spared. That is unsatisfactory. The instructor needs to be on the ground all the time.

COUNTY.	INSTRUCTOR.	NATURE.
Bedford	W. Herrod	Joint with bee-keeping
Cambridge	G. H. Read	Part time
Cheshire	G. W. Tallemant, N.D.D.	From Holmes Chapel
Cumberland	Miss F. Coward	„ Newton Rigg School
Derbyshire	E. Russell	} „ Midland College
	J. V. Moore, Ass.	
Essex	Miss A. Matthews	Joint with Dairying
Gloucester	H. R. Howman	Part time
Hereford	Miss N. Yeld	Joint with Dairying
Hertfordshire	R. R. Allen	Part time
Leicestershire	(See Derbyshire)	From Midland College
Monmouth	H. R. Howman	Part time
Norfolk	Miss Jean Jones	Joint with Dairying
Northampton	Capt. Pierson	} Part time
	Webber	
Nottinghamshire	(See Derbyshire)	From Midland College
Staffordshire	Miss E. Noble	Joint with Dairying
East Suffolk	Miss M. E. Connell	Joint with Dairying
East Sussex	S. C. Sharpe	From Uckfield College
Warwick	Capt. Pierson	} Part time
	Webber	
Westmorland	Miss F. Coward	From Newton Rigg School
Anglesea	W. Hopkins Jones	From Bagnor College
Carnarvon	Miss R. M. Edwards	Joint with Dairying
Denbigh	W. Hopkins Jones	From Bagnor College
Flint	W. Hopkins Jones	From Bagnor College
Glamorgan	Miss Ella Edwards	Joint with Dairying

FULL TIME COUNTIES.

In these it may be recognised that at least there is a fair attempt to deal with poultry seriously, though the staffing is not adequate in all cases.

COUNTY.	INSTRUCTOR.
Devon	N. A. Swaffield
Kent	W. F. Snell
	W. R. Snell (Assisiant)

Lancashire	C. H. Dobbin
Shropshire	W. E. Lloyd
Somerset	C. E. J. Walkey
Wiltshire	A. D. Allen
Worcestershire	G. A. Palmer
Yorkshire	F. Parton

Only eight counties rise, therefore, to the dignity of a Poultry Instructor of their own. It is, indeed, a record of which the counties should be ashamed.

MODERN SCIENCE AND POULTRY PROBLEMS.

BY OSCAR SMART.

"We require to bring into our purview the marvellous advance of pathological knowledge which has marked recent years, to study how far genetics and mendelian theories will assist practical poultry men, and to enquire into the relationship of breeds to their environment." (Extract from the speech made by Mr. Edward Brown, F.L.S. before the International Poultry Conference, on July 19th, 1912.

I. DARWINIAN SELECTION.



F only that he pointed out the variation existing between individuals in respect to specific characteristics Darwin's contribution to natural science would be worthy of note. There are no two individuals exactly alike; and this dissimilarity, even amongst animals claiming blood-relationship, formed the basis of his famous theory on descent. It was not sufficient in itself (although Darwin claimed that it was) to establish what are now known as varieties, but it was sufficient, and is even now sufficient, to provide a mass of material out of which selection may be made. Varieties are the natural and only conceivable result of selection, whether natural or artificial; the only question is, what methods of selection have hitherto prevailed?

ENVIRONMENTAL SELECTION.

Darwin believed that, in a wild state, this selection was effected by means of the environment; for he maintained that the animals possessing characteristics which were out of harmony with their surroundings would in the natural course of events perish, while those possessing characteristics which were in every sense adapted to their condition of life would live to perpetuate their kind. Thus a certain rigorous process of natural selection was always in operation.

That this kind of selection *generally* prevailed is, I think, open to some doubt, but that it prevailed in *some* cases is beyond question. We cannot, for instance, doubt that there exists a certain relationship between the coat and the temperature in a cold climate. It is conceivable, it is even extremely probable, that under these conditions the wealth of hair or feathers has a great deal to do with the survival of the

individual. We can imagine that an animal incapable of growing a long coat would perish, that the short coat, in consequence, could not be perpetuated. Here we can see environment at work selecting the fit from the unfit; saying in effect "these long-coated creatures shall live and breed; these with sparse coats must die."

This process of selection may have had something to do with those heavily feathered breeds of fowls, such as Cochins and Bramhas, which were originally imported from the more easterly plains of Asia; and it is a fact worthy of note that given a number of different breeds of fowls that one could quite easily, by the amount of feather alone, divide them into two great classes—(1) those originated in eastern Asia, and (2) those originated in southern Europe.

It will therefore easily be seen how, in some instances, the environment may eliminate forms failing to correspond with their surrounding, thus leaving only the fit or "corresponding forms" to inter-breed and perpetuate their kind. This, briefly, is what we mean by "environmental or natural selection."

Does like reproduce like? Darwin assumes that the inter-breeding of favoured forms will tend to make the selected characteristics constant in hereditary transmission; is this actually so? It must be admitted that fowl breeders mate their birds on the assumption that this is the case—that by consistently selecting the best, either in respect to Fancy or Utility characteristics, and by mating these together they will produce a high standard of perfection; but is this necessarily correct? I am afraid not. If it could be proved that every fowl carried every character in the germ-cells as a genetic factor, then this method of breeding would be correct. But, as we shall shew in the course of these articles, *every* factor is not represented in this

way; hence this is not always the best method of breeding.

This fact, discovered since the advent of the present century, has done much to disprove the belief in like necessarily begetting like, and to place the science of breeding on an altogether more scientific footing. The practical evidence may be illustrated in this manner.

had to be forthcoming by which it could be shewn that organic adaptations could be represented in the germ-cells and thus handed down from one generation to another. This Darwin supplied in what he termed "Pangenesis." He believed the body capable of giving off minute buds or pangenes which were passed, by means of the blood, into the reproduction organs.



Spangle Yokohama Hen. 1st Utrecht, Paris, and Birmingham. The property of Mrs. Prideaux.

Black to black breeds all black progeny, because the black colour is carried as a genetic factor.

Blue to blue does *not* breed all blue progeny, because the blue colour is *not* carried as a genetic factor.

Pangenesis. If it was to be contended that the environment had played an important part in descent, it was quite clear that some theory

The egg-cells of both males and females came in the course of time each to possess a complete set of these buds, so that the characteristics of the parents were handed down to the progeny by the hereditary transmission of the pangenes. More recent discoveries of a cytological nature have now proved the fallacy of pangenesis. It was originated to account for the supposed inheritance of acquired modifications; I shall

shew in a later article that such modifications are not hereditary.

We may conclude from these facts that the importance of Darwin's theory of "natural selection" rests in the parts relating to the correspondence between environment and variation, and not on its treatment of heredity relative to this correspondence. The power of the environment to act as a means of selection is in every sense restricted to very narrow limits; for so long as we see so many varieties of the same species existing side by side in exactly the same environment we cannot, of course, accept the whole doctrine of natural selection.

SECONDARY SEXUAL CHARACTERS.

If we agree to question the value of natural selection in respect to poultry breeding on account of its want of general application, no such objection can be raised to the facts of sexual selection.

We have to understand what is meant by "secondary sexual characters." These are those particular characters, peculiar to one sex, which are yet not actually concerned with the organs of reproduction. These characters, in normal animals, are known to be sex-limited in their inheritance. There are many such characters in fowls which, as we are all aware, descend only to the male progeny. Flowing neck and saddle hackles, the development of the sickles and those drooping tail feathers known to fanciers as "hangers," may be cited as examples of secondary sexual characters.

It is, however, more in respect to colour that we wish to speak here. In, for instance, the Brown Leghorn, the colour of the males is quite distinct from that of the females, the respective colours, as everybody knows, being sex-limited in descent. Why is this? If you were going to make a new breed of fowls how, if you desired it, could you make the males of one colour and the females of another, causing the respective colours to be sex-limited in descent?

To understand the nature of a sex-limited character we have to consider two alternatives; the first is Darwin's views on sexual selection and sexual inheritance, the second is the Mendelian explanation of spurious Allelomorphism. We will explain both views and then see if there is any means of reconciling the one with the other.

Sexual Selection. Several principles are involved in Darwin's view: (1) that modifications appearing first of all late in life, that is to say at about the period of maturity, are inherited *only* by the sex in which they first appear, (2) that the females have some kind of choice in the selection of their mates, and (3) that certain modifications in particular males have given

them a preference, in the sight of the females, over other males not possessing these modifications.

Applying these principles to *gallus bankiva*, where the cocks are of a different colour than the hens, the following course of descent would be the most probable.

At some period in the history of the species both sexes must have been coloured alike; that colour must have been similar to the "black-red" of fanciers. The "red gold and black" of the male plumage would have first occurred in individual males when they were between 5½ to 7 months old. This brighter plumage must have given such males a certain preference over all other males in the sight of the hens. They were therefore sure to obtain several mates. The fact of the "red gold and black" having occurred in the first instance late in life in the males only, alone would have ensured it being transmitted only to the male offspring. The fact of the "gorgeous plumage" being pleasing to the hens, would, in the course of time, ensure all male *gallus bankiva* inheriting the "black-red" plumage.

Spurious Allelomorphism. The Mendelian view is that the difference in the colour of the sexes in *gallus bankiva* is to be accounted for by what is known as spurious allelomorphism. If this view is correct it means that the colour of the two sexes may be regarded as a pair of allelomorphic characters, the colour of the male being a simple dominant, suppressed in the females by what is known as a "suppressing factor," in this case *femaleness*. That is to say that the "red gold and black" is inherited by the female jungle fowl, but cannot develop owing to the simple fact that the female *is* a female.

There is a good deal of very strong evidence in support of this contention, and the fact that barren hens frequently assume male characters, including male plumage, is certainly a point in favour of spurious allelomorphism. If the male colour were not suppressed in the hen by femaleness it is hardly possible that a barren hen (which may be said to have lost the suppressing factor of femaleness) could develop the male plumage.

If D represents the male plumage dominant, and d represents the male plumage recessive, it is clear, if the above facts be accepted, that the progeny from Brown Leghorns, and similar sex-coloured birds, shew two kinds of zygotes. These are

D ♂	d ♀
-----	-----

the ♀ acting as the suppressing factor causing D to be inherited as a recessive instead of as a dominant character.

On first becoming acquainted with the facts it appears impossible to reconcile these two views; it seems as if we *must* accept one and

reject the other. I think, however, that a more careful examination will shew the two views to be more or less complementary one to the other, if not actually parallel cases.

For instance, as Darwin contends, the modified plumage must first have appeared only in the males, while, as Mendelism shews, there is a certain factor, namely, femaleness, which suppressed it in the female progeny. Darwin, however, contends that the modification must first have appeared at the period of maturity to have ensured it being sex-limited in hereditary transmission; no such proviso is necessary in spurious allelomorphism. It is here chiefly that the opinions may be said to differ, and the question is which view shall we accept?

The question is not perhaps an important one from a practical point of view in respect to established varieties of sexually coloured fowls; but in making a new breed, where the sexes are to differ in colour, the question immediately assumes a serious aspect.

In respect to sexual colour we have come to the conclusion that the period of modification *decides whether femaleness shall or shall not prove a suppressing factor*. We therefore find that where the two views seem most widely to diverge they are in reality, when rightly interpreted, complementary one to the other.

PRACTICAL HINTS.

We may now give a few practical hints on the subjects already treated.

There are a number of characters in fowls which may be affected by the environment. Since it should be our object to breed for characters in harmony with, rather than in opposition to, the surroundings, it behoves us to consider heredity and environment as two complementary factors in the construction of the organism. In some cases we can afford to ignore the environment as an active cause of variation, in others we must clearly understand its influence.

It is of no use to rear exhibition white breeds on soil containing a heavy percentage of iron—iron has a tendency to give a yellow tinge to white plumage. It is of no use to breed the Mediterranean varieties in bleak or exposed positions; their sparseness of feather, under such conditions, will render them unprofitable—in a wild state they would perish if exposed to prolonged and extreme cold. Any breed possessing a characteristic upon which a certain class of environment will have an injurious effect should not be introduced into such adverse conditions of life.

On the other hand some characteristics may actually be *improved* by the surroundings. The comb of large combed breeds is improved by a

warm and sheltered position; rich pasturage improves the leg-colour of yellow-legged breeds; a large percentage of iron in the soil and water is of immense benefit to a heavy laying strain; other similar cases will occur to the reader. Wherever possible the environment should be utilised in the perfecting of hereditary characters.

In spite of all this it should be remembered that the environment only affects a few characters; it by no means affects all. This point will be clearly illustrated in later articles.

Lastly we have to consider the practical value of sexual selection, and the inheritance of secondary sexual characters.

In making a new breed which you desire to present differentiating colour in respect to sex be very careful to select the foundational material wisely. Many people make a new breed by crossing existing breeds and by improving and enlarging on the new factorial combinations thus brought about, but this side of the subject does not concern us just at present.

If, for instance, it is desired to make a variety of Orpingtons, the hens of which shall be exactly like the Buff variety, but in which the males shall have *white* neck and saddle hackles, the rest of the plumage being buff, this would be the method of selection to adopt.

In some strains the male Buff Orpingtons when coming into adult plumage shew individual birds with white feathers in the hackles; if this variation shews *only* in the cockerels select these birds and mate them to *pure* buff hens. From the resulting progeny select the males shewing most white in the hackles, and mate again to *pure* buff hens. Proceed in this way until such time that males with *pure white hackles* are evolved. Most carefully remember these two points:

(1) Modifications appearing late in life in only one sex are limited in inheritance solely to the sex in which they first appeared.

(2) Modifications appearing early in life are *not* limited in their transmission, but are inherited by *both* sexes.

If we take a pair of Campines we find a white neck hackle in both sexes; we therefore know that this variation either occurred, in the first place, in chickenhood, or that, if occurring at maturity, it first of all appeared in both sexes. If we take a pair of Dorkings we find the pure white neck hackle only inherited by the males; we therefore know that this modification first appeared in the males alone *at about the period of maturity*.

What applies to colour also applies to other characters; to limit a character to one sex in hereditary transmission it must first appear only in one sex, and late in life.

RESPONSIBLE OFFICIALS OR OFFICE BOYS? METHODS OF THE AGRICULTURAL ORGANISATION SOCIETY.

[We make no apology, in view of the large amount of interest awakened, in publishing a verbatim copy of the communications between Mr. Edward Brown, F.L.S., and the Agricultural Organisation Society, which preceded his severance from that semi-official body, and also a brief note from Mr. Brown, which has been written at our special request.—EDITOR I.P.R.]

I.—Copy of Instruction issued by the General Secretary of the Agricultural Organisation Society, dated November 12th, 1913.

"Circumstances have arisen which have drawn the attention of the chairman (Lord Shaftesbury) to the inadvisability of any member of the A.O.S. staff leaving the office for the purpose of interviews relating to A.O.S. work with officials at Government Departments, and Lord Shaftesbury wishes me to issue the following instruction:—

That no member of the staff is to leave the office for the purpose of interviews without first obtaining my permission. (signed) J. N. HARRIS."

II.—Copy of letter in reply to No. I., sent to the General Secretary of the A.O.S., dated November 17th, 1913.

"Dear Mr. Harris,—I beg to acknowledge your circular letter of the 12th inst., embodying the instruction respecting members of the staff of the A.O.S. and interviews with the officials of the Board of Agriculture and Fisheries, sent out by direction of the chairman (Lord Shaftesbury), the issue of which has surprised me very much, equally as to the principle involved and the wording.

In reply I beg to intimate that I respectfully decline to accept or be ruled by such regulation, reserving an absolute right to confer with or interview officials of the Board in regard to the work of my department when, in my judgement, that seems desirable. Unless I am capable of undertaking that responsibility I am unfit to occupy my present position.

I cannot but feel that in respect to departmental and not administrative officials of the A.O.S., this instruction has been issued under a misapprehension. I should never think of going to the Board or give information respecting questions involving the general policy of the Agricultural Organisation Society, unless specially instructed to do so. If I was approached by anyone in the way indicated, I should at once refer them to you as General Secretary.

When, however, it is purely a matter within the scope of my own department it is a totally different question. To impose such a restriction would not only be offensive to myself, but seriously hamper my work. I regard it as my business to get and to give all the information possible, to consult with any and with everybody who can help in connection with what we are trying to do, and to report whatever transpires of sufficient importance to the Egg and Poultry Committee for its consideration. The moment policy is in sight then I should transfer to or consult with you.

Under these circumstances, I ask that the circular letter referred to be withdrawn, so far as I am concerned.

Sincerely yours,

(signed) EDWARD BROWN,

Sec. Egg & Poultry Committee."

NOTE.—The words underlined were not in the original letter, and were added at the



A Flock of Pekin Ducks.

[Copyright.]

request of Mr. J. Nugent Harris, at an interview on November 18th.

III.—Copy of letter received from Mr. J. N. Harris, dated the 21st November, 1913.

"Dear Mr. Brown,—I submitted a copy of your letter of the 17th inst., re interviews with officials of Government Departments to my chairman (Lord Shaftesbury), and he desires me to inform you that no exception can be made to the order issued.

Yours faithfully,
(signed) J. NUGENT HARRIS,
General Secretary."

IV.—Copy of letter addressed to the General Secretary of the A.O.S., November 24th, 1913.

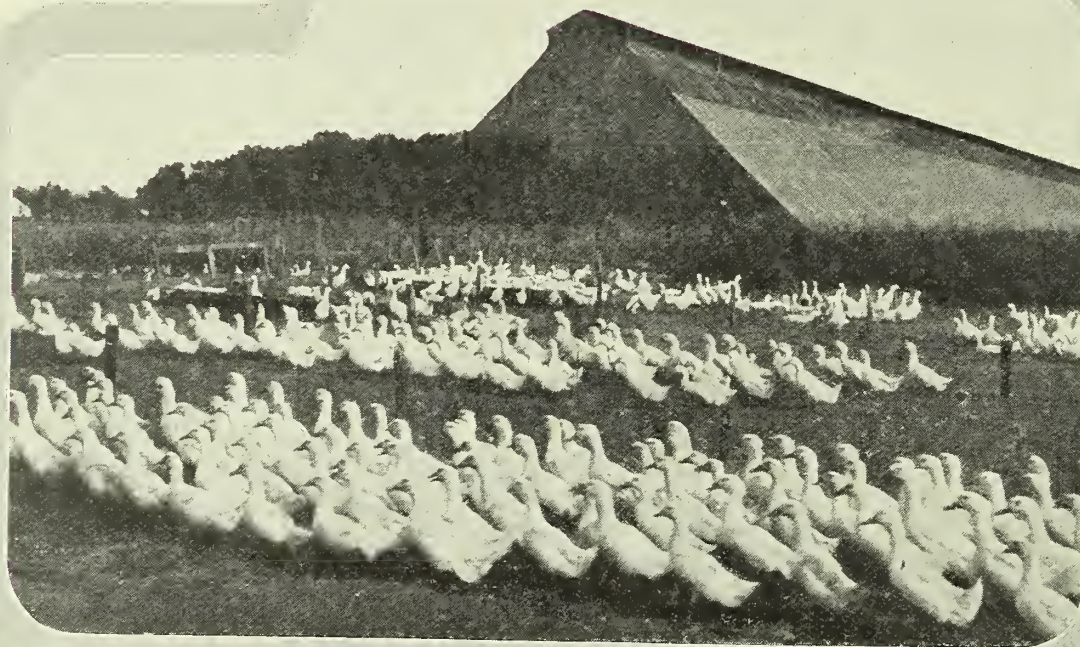
"Dear Mr. Harris,—I beg to acknowledge receipt of your favour of the 21st inst., which only reached me this morning, with respect to instruction issued by you on the 12th inst., as to interviews with

Second: The instruction of November 12th, was, in my opinion, offensive in the extreme. To inform men in responsible positions that they shall not "leave the office for the purpose of interviews without first obtaining my permission," men who by their appointment are presumably competent, is an insult;

Third: That the method of issuing this instruction was reprehensible. It was delivered to me as an open letter by one of the office youths, who had every opportunity of reading it. Even had it been necessary, respectful treatment of the staff demanded that it be kept as private as possible and be issued in a sealed envelope; and

Fourth: As a large share of the funds of the A.O.S. are derived from public sources, I submit that Government Departments have a right to look for the freest intercourse with any and every official of the A.O.S., as occasion may require for the purpose of giving or obtaining information on either side.

Yours sincerely,
(signed) EDWARD BROWN,
Sec. Egg & Poultry Committee."



Breeding Stock at liberty.

[Copyright.]

officials at Government Departments, to the effect that the chairman (Lord Shaftesbury) has decided "that no exception can be made to the order issued."

In reply I beg to reiterate what was stated in my letter to you on the 17th inst., namely, that "I beg to respectfully decline to accept or be ruled by such regulation."

Additional to what was submitted by me in the letter referred to I desire to point out:

First: That if any member of the staff in such an interview has failed to recognise the canons of distinction between policy and departmental work, surely the action to be taken is to bring him to book, and not to restrict the liberty and operations of others who have carefully observed such canons. It is, in my judgement, a reflection upon them and a curtailment of their responsibility which is undeserved. Unless the heads of departments are capable of trust they are unfitted to occupy their positions.

V.—Copy of further letter sent to the General Secretary of the A.O.S., dated November 25th, 1913.

"Dear Mr. Harris,—As supplemental to my letter of yesterday, with reference to the instruction issued by you on the 12th inst., I write to say that if, as I hope may be the case, the question thus raised is considered at the meeting of the Finance and General Purposes Committee to-morrow, I trust that my two letters may be submitted, and that I rely upon you to make clear that at the interview with you on the 15th inst., I did not ask for any exception being made in my case. As you will remember, you voluntarily stated that you thought I occupied an exceptional position, although I did not agree with you then nor do now. And, further, that in my letter to you of the 17th inst., I did not make any request of that nature. In fact it was at your suggestion there were added to

the last paragraph the words "so far as I am concerned."

Yours sincerely,
(signed) EDWARD BROWN,
Sec. Egg & Poultry Committee.

P.S.—I do not propose to attend the Staff Conference to-morrow evening, with which I think you will agree, when I state that if present I should raise the question of this instruction and frankly state my views regarding it."

VI.—Précis of interview between the Earl of Shaftesbury, Chairman of the Agricultural Organisation Society, and Mr. Edward Brown, Secretary of the Egg and Poultry Committee, December 1st, 1913.

Lord Shaftesbury stated that he had seen the correspondence which had passed between the General Secretary and Mr. Brown, relative to the Instruction issued on November 12th, 1913, with reference to the interviews on the part of members of the A.O.S. staff with officials of Government Departments. He thought that Mr. Brown did not understand the reason for issue of such instruction, namely, that a member of the staff had been sent for by an official of the Board of Agriculture. He, as Chairman, objected to such interviews taking place without permission of the General Secretary. He, further, stated that members of staff at the central office gave weekly a record of their engagements, and any other absences should only be by sanction of the General Secretary, instancing the previous Tuesday (November 25th) when he had sent for Mr. Brown to find that he was absent, and it was not known where he was. Lord Shaftesbury said he did not in the first place propose to discuss the manner in which the instruction was sent out, to which Mr. Brown had objected in one of his letters.

Mr. Brown explained that he had been called out of town on private business the previous Tuesday, of which he did not definitely know until the morning of that day, when he had telephoned to his assistant to say that he could not be at the office. He regretted that this had occurred at a time when the Chairman wished to see him. That, however, was quite exceptional, had never taken place before, and was unlikely to recur. He also said that his instructions were that London engagements were not to be entered upon the weekly list.

Mr. Brown further said that as head of a department, occupying a responsible position, he claimed that interviews with anyone should be within his decision, without having to ask permission, and that if he found it necessary to go out for the purpose, and left word with his assistant where he had gone to, and when he expected to be back, in case he was asked for,

such was all that could be reasonably required. His work was not that of a clerk, to sit in the office for a number of hours, and merely to do what he was told, but head of a section of the Society's operations. For example, he might think it desirable to seek for information on various matters, the purport of which was incomplete, and claimed the right to do this without asking permission from anyone before reporting to the Egg and Poultry Committee, or the General Secretary. He further called attention to the fact that he had brought to the Agricultural Organisation Society a long and varied experience and wide knowledge, and that he was not and should not be treated as a novice.

Lord Shaftesbury stated that the Governors had recognised Mr. Brown's exceptional services as Secretary for so many years of the National Poultry Organisation Society, now merged in the A.O.S., and said that Mr. Brown (1) must agree not to leave the office on days he had no country engagements without informing the General Secretary where he was going, the object of his visit, and how long he would be absent; and (2) withdraw the letters he had written to the General Secretary respecting the Instruction of November 12th, 1913.

Mr. Brown replied that he was unable to conform with either of these requirements.

Lord Shaftesbury said that he should report, therefore, to the governing body, which would, he felt sure, regard very seriously the position thus taken by Mr. Brown.

Mr. Brown stated that he could offer no objection to such procedure. He felt that the time had come when his relationships with the Society must be placed on what he regarded as a fair and reasonable basis, or his connection terminated. He instanced various directions in which the action taken since he had come under the reconstituted Agricultural Organisation Society was not what he had expected to be subjected to as a responsible departmental officer of the Society.

The interview then terminated.

IV.—Letter addressed to the Finance and General Purposes Committee, per the Chairman, December 2nd, 1913.

To the Finance and General Purposes Committee of the Agricultural Organisation Society.

"Ladies and Gentlemen,—I beg herewith to give notice for the termination of my present engagement with the Agricultural Organisation Society, to take effect of March 31st, 1914, when the year of service under the reconstituted body will be completed.

My reasons for giving this notice are, among others, (1) the Instruction issued by the General

Secretary on November 12th, which I understand is to be submitted to you, together with the correspondence which followed between the General Secretary and myself, and confirmed at the interview which I had with the Chairman on December 1st, a Précis which is appended; and (2) the Form of Agreement which has been sent to me for signature.

I beg to remain,
Yours faithfully,
(Signed) EDWARD BROWN."

V.—Précis of interview between the Finance and General Purposes Committee and Mr. Edward Brown, at Caxton Hall, Westminster, S.W., on Thursday, December 18th, 1913.

The Earl of Shaftesbury (Chairman) explained that the Committee had sent for Mr. Brown with reference to the communications which had been received from Mr. Brown by himself and the General Secretary.

Lord Shaftesbury further said that he had placed before the Committee his reasons for authorising the issue of Instruction by the General Secretary, on November 12th, relating to interviews of members of the Staff with officials at Government Departments, and his action had been approved. The Committee had also considered Mr. Brown's letters to the General Secretary and Report of interview with himself. He, the Chairman, now wished to state that if Mr. Brown would undertake before leaving the office at any time to send word to Mr. Harris where he was going, the business he was upon, and how long he would be absent; and, also, withdraw the letters he had written to the General Secretary, no further action would be taken by the Committee.

Mr. Brown said that he was not prepared to accede to either of these conditions. He would always leave word with his assistant, as had been his custom, where he was going, and how long he expected to be absent from the office, in case he was asked for.

Lord Shaftesbury enquired what reasons Mr. Brown could give for assuming this attitude.

Mr. Brown said that he had stated his reasons very fully in the letters to the General Secretary, but in addition submitted that he had been appointed head of a department of the Society, and as such he did not regard it as reasonable to impose upon him such a restriction. He said that he would be very sorry indeed to give up his work in connection with the Agricultural Organisation Society, in which he took a keen interest, and assured the Committee that he had nothing alternative in view. Whilst, therefore, he in no way wished to contest the right of the Committee to make any such regulations as it deemed desirable, he would

rather terminate his connection with the Society than accept what he regarded as an unreasonable condition.

Mr. Brown then withdrew.

VI.—Copy of letter received from the General Secretary of the A.O.S., dated December 27th, 1913.

"Dear Mr. Brown,—I have to inform you that the Chairman of the Governors reported to the Finance and General Purposes Committee at their meeting on the 18th inst., the receipt of your letter dated 2nd of December, 1913, tendering your resignation, and it was resolved:—'That Mr. Brown's resignation be received and that his services be terminated three months from the date of his letter tendering his resignation, viz., the 2nd of March, 1914.

I remain,
Yours faithfully,
(signed) J. NUGENT HARRIS,
General Secretary."

VII.—Copy of letter addressed to the General Secretary of the A.O.S., dated December 23rd, 1913.

"Dear Mr. Harris,—I beg to acknowledge receipt of your favour of yesterday's date, informing me that the Finance and General Purposes Committee have accepted my notice of termination of engagement on March, 31st, 1914, for which I thank you.

In my view it is better that facts should be realised. The Instruction of November 12th, 1913, is but one of several indications that the views of the Governing Body in respect to my relationships with the Agricultural Organisation Society, and the spirit which has characterised the general administration, are widely divergent from and incompatible with my own ideals of service. Had I realised that the policy, in so far as the Heads of Departments are concerned, would be what has proved the case, I should have declined last March to accept the position of Poultry Expert and Secretary of the Egg and Poultry Committee under the reconstituted Society.

I shall be very sorry to disassociate myself from the work in which I have been so long engaged, though until recently under very different conditions. As Secretary of the National Poultry Organisation Society for nearly fourteen years, I was fully and entirely trusted by the Committee and Members. Those responsible for the reconstituted Agricultural Organisation Society, with which, unfortunately as it proves, the N.P.O.S. has been merged, now make it impossible for the continuance of my work in this connection.

Yours sincerely,
(signed) EDWARD BROWN."

VIII.—Extract from letter received from the General Secretary of the A.O.S., under date of January 29th, 1914.

"Dear Mr. Brown,—Your letters of December 23rd and 24th were considered by the Finance and General Purposes Committee at their meeting held yesterday (the 28th inst.), and it was decided that a cheque for the amount of salary due to you from the 1st of January, 1914, to the 31st of March next, be made out and given to you and that your services be dispensed with as from to-day.

(signed) J. NUGENT HARRIS,
General Secretary."

STATEMENT BY MR. EDWARD BROWN, F.L.S.

SO many communications have reached me as to recent events that I have yielded to the request of the Editor for permission to publish in full the communications received from and forwarded to the Agricultural Organisation Society, which eventuated in my severance from that body, in order that the public, who provide the greater part of its funds, may be able to form a judgement upon the questions involved.

I do not propose, however, to discuss, much less enlarge upon the subject. My position is made fairly clear. It is satisfactory to state that the consensus of opinion of those to whom these documents have been submitted, and who have expressed themselves thereon, is to the effect that no other course was open to me than to send in my resignation. It need hardly be said that the Instruction of November 12th, 1913, was by no means an isolated instance though it proved to be the climax. Some of these cases were childish in the extreme, while others indicated a policy of crushing individuality, making the central staff mere automata.

There are, however, two points which I may be permitted to mention, namely, first, that in 1909 when the Board of Agriculture and Fisheries decided that grants made for co-operative organisation should be restricted to one Society, some of us realised that the danger of swamping the N.P.O.S. was very great. That was the initial mistake. Special subjects like poultry require special consideration and treatment, with a Committee and Staff interested in the question, prepared to give themselves to it and not be buried in a crowd, which generally means a strangling amount of red tape, delays, waste of time in getting things done, and pedantic fussiness. When the same policy was adopted by the Development Commission the way of the N.P.O.S. was made harder. That sequence of events led to its unfortunate merging with the A.O.S., which, as documentary evidence proves, I regarded as a retrograde step. So it has proved.

The second point refers to the spirit of administration, of which the letters quoted afford abundant evidence. I think it was Thomas Edison who said that the way of success was to get the best man possible and trust him. In such a work as I took part, my expectation was that what may be termed responsible leadership would be adopted, giving each man a large measure of freedom, subject to reasonable conditions. That would not take from the position of the Governing

Body or the supreme head, would relieve them and him from details, and bring out the best of every man, for he would know that credit would be given for any good work that he did. The reverse policy has, however, been adopted, namely, that of personal control, even to minute details, so much so that the slight modification suggested by the Chairman, meant that I could not leave the office without informing the General Secretary where I was going, and upon what business, etc. In fact, on one side, that made the Instruction of November, 12th, 1913, which only referred to interviews with government officials, much more severe in its restriction. Such want of trust made the position untenable.

It has been, therefore, a conflict of ideals. The grasping of power on the one side, the evident desire to crush individuality in the staff, the despotic and autocratic spirit thus manifested, could have only one end, so far as I was concerned. The disastrous fact is that the Instruction to which reference has been made



A striking example of Plymouth Rock plumage.

[Copyright.]

followed closely on the heels of public announcement that the National Poultry Organisation Society was no longer in being.

As to the future, I am not without hope that to some extent the false step taken may be retraced, and that the work of the last fifteen years may be continued. As to that more will be said later.

EDWARD BROWN.

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Westminster, S.W.

FEEDING BREEDING STOCK.

By F. W. PARTON (*The University, Leeds.*)

THE feeding of poultry in every stage of their life, from the time of hatching until the end of their career is of the utmost importance, but never more so than during the breeding season. Not only is health and vigour to be maintained, but production has to be fed for and unless feeding is on right lines and suitable food used, the condition of the breeding stock will only ensure a small percentage of fertile eggs and the constitution of the chickens actually hatched will augur ill for the future transmission of stamina, an absolute necessity in breeding stock.

Probably overfeeding is where most poultry keepers make a mistake at this particular time of year. If the stock birds are too fat, fertility will be low, germs weak, and chickens delicate, and it is far better to have a limited supply of eggs that will hatch than a larger yield of infertile ones.

During the breeding season the food should be of a nature to keep the birds in a hard lean condition: soft food should not be given every morning as it tends to the accumulation of internal fat, with disastrous results. The evils of overfeeding show themselves in so many different ways. In addition to those already enumerated perhaps the result is most apparent in the egg itself. Soft shelled eggs, double yolks, pale yolks, malformed chickens, and many other irregularities are traceable to bad methods of feeding. An evenly balanced dietary should be maintained, which implies a correct proportion of nitrogenous and heat producing elements. During the breeding season there is a great strain upon the fowls' system; the vigour of both sexes has not only to be maintained but increased as the season advances, and, therefore, it is necessary for the poultry keeper to understand something of the food elements and their functions.

Two, at the very most, three feeds of mash per week will be found quite sufficient. The stock do best on a variety of grains, wheat and oats being the staple, if, however, the weather is cold, a little barley should be fed, as this grain which is strong in carbo-hydrates will provide the extra amount of bodily heat required. In feeding breeding stock very often the necessity for animal food is entirely overlooked. This is doubtless one of the most valuable additions to their dietary combining as it does the egg producing materials with those designed for the maintenance of vigour. It is very often argued that animal food is of too forcing a

nature to be given to breeding stock. I am very strongly opposed to forcing at this particular period, and if I had found animal food too strong I would condemn it at once. Most emphatically my experience has been that animal food is not merely stimulating but also materially increases the activity of the vital functions generally and consequently has a beneficial effect upon the progeny. This variety of food bears a closer resemblance to that which the birds would obtain in their wild state than any of the foods supplied under domestication. When fowls have the run of a farm and wander at will over pasture and stubble, they obtain from the soil many small particles largely composed of minute insect life, such as nature evidently craves for and which the birds secure during their day of gleaning. Animal food may easily become dangerous if given in excess, but of course the warning applies equally to many other foods without the exercise of a little commonsense in their use. If too much animal food is given the body gets into a heated unhealthy condition, and trouble follows very rapidly. The exact amount must depend upon the time of year, also the amount of liberty the fowls enjoy, and whether this latter leads them to land where they can secure an abundance of animal life. When the season is well advanced insect and grub life is much more plentiful than during the earlier months, so that when the birds have free range they will obtain all the necessary animal food from the soil. Previous to this the quantity per bird should be rather under than over half an ounce per day, or one ounce for each bird three times a week. The morning mash is the best medium for supplying animal matter, and as soft food should only be given two or three times a week, perhaps the poultry keeper will find it more convenient to give meat only on the days when the fowls have a "soft" breakfast.

It is highly important for the meat to be perfectly fresh, and thoroughly cooked. It is true there are those who advocate giving it raw, but meat is always more readily digested when cooked, and furthermore the quality of the egg, is not impaired. Liver, lights, or any other offal or "trimmings" obtainable from the butcher will answer the purpose excellently.

Whatever the method of feeding, green food should enter very largely into the dietary of breeding stock, but it is absolutely imperative during the period when animal food is used. Any undue heating of the body accruing from the meat is counteracted by the vegetables, which do much to keep the birds in a perfect state of health by reason of their cooling and easily digestible nature.

THE POULTRY INDUSTRY IN NEW SOUTH WALES.

Some very interesting information is given in the *Sydney Morning Herald* as to the development of poultry breeding in that colony, which show a marked progress. The article is too long to give entirely, but we quote from it several items.

"Within recent years there is, perhaps, no other land industry which has enlisted so many recruits, and made such a general advance as poultry keeping. Several factors have caused this, chief of which has been the high ruling rates for eggs and poultry, and moderate food prices, while many orchard dis-

exclusively to poultry keeping, and also for the fact that never before have fowls and ducks been so generally kept on the agricultural and other large and small holdings of the State.

Poultry breeding has been carried on in this State from the earliest records, but not till within the past twenty years did it assume dimensions entitling it to be termed an industry. Prior to this time great numbers of poultry were bred on the farms, but the demand was so small and prices low, that there was no incentive to adopt it as a sole business. Indeed, by 1896 or 1897, eggs could be had for 5d. to 6d. per dozen, and when an export trade in poultry was established, those who received a net return of from 3/- to 4/- per couple for their birds announced that it



The best method of housing fowls in winter is in scratching sheds, where they can obtain exercise— so necessary a factor in maintaining health.

[Copyright.]

appointments, through diseases and pests have caused fruit growers to adopt poultry farming as a side-line, with profitable results. A further cause for the very great increase in production is the large amount of literature issued on the subject by the Government and press, the egg-laying competitions also sharing in the credit of showing the prolificacy of the hen. The latter, while not demonstrating anything hitherto unknown, have placed beyond doubt the merits of the respective breeds of fowls, and have shown that, while a certain few breeds are better layers than others, in every breed and variety there are good and bad performers.

The above are the principal factors responsible for poultry breeding having now become a recognised industry, there being hundreds of holdings devoted

was better than the local trade.

Recent years have changed the whole aspect, the demand for poultry products being such that, despite the extraordinary increase in production, the local demand is not yet met, many thousand head of frozen fowls being annually imported from Victoria. The prices of even moderate table poultry the past two or three years respectively have reached 8/6 to 9/- per couple alive, while old hens, which at one time were available at half-a-crown a couple, now regularly go to 6/- and over. Those competent to give an opinion assert that the Sydney market for poultry and eggs is the best in the world."

Figures are given showing the monthly average prices for new-laid eggs for the years 1906 to 1912.

The advance recorded is equal to thirty per cent. The state statistician reports that the number of fowls upon farms and holdings of one acre and upwards, increased from 2,721,986 in 1908, to 3,351,600 in 1912; ducks increased in the same period from 229,870 to 261,100; geese decreased from 25,631 to 23,900; and turkeys increased from 193,613 to 216,300. The estimated number of eggs produced in 1908 was 11,305,290 dozens, and in 1912, 13,769,000 dozens.

"In the four years ending December 31st, 1912 the poultry had increased by almost three-quarters of a million head, and eggs by over two million four hundred thousand dozens, and it is considered a corresponding increase has taken place on areas of under one acre.

Except those actually connected with the industry few have any conception of its immensity. The turnover in Sussex Street alone for poultry and eggs for the year must run into several hundred thousand pounds. One firm during 1912 paid out cheques, chiefly for eggs, for over £50,000. At the Municipal Markets there are three or four selling firms whose sales respectively total from £500 to over £1,000 weekly. There are also sale-rooms unconnected with the markets, with very large turnovers, while thousands of coops are consigned privately to city poulterers and other establishments. The producers include a few suburban poultry farms, which would

The figures already quoted are up to 1912, and while the price of poultry the present year will equal that of any of the past ones, eggs from August last were till a week or two ago from 1d. to 2d. per dozen lower than the corresponding period of last year. Concerning the future prospects it can be safely stated that further increases will not be in ratio with those of the past few years. The poultry business pays best as a side issue to other operations on the land. Agriculturists, market gardeners, fruit growers and a very large number of those connected with these undertakings, already stock fowls. Exclusive poultry farming appeals chiefly to those with growing families, it being found almost impossible to secure outside labour, the business necessitating long hours, and seven days in the week. Even members of a family who have been brought up on successful poultry farms when grown up rarely adopt this form of occupation. The glamour of city life, with a State regulated wage, short hours and amusement opportunities appeal to them in preference to the rural life."

THE RAMBLES OF A POULTRY FANCIER.

By REGINALD WILLS.

THE sun was shining brilliantly when I left home early one afternoon and made my way across the style facing our house. Bearing to the left I came to a splendid sight, for here were fields of corn and trees of a stalwart kind.

Now and then a leaf would fall, and it seemed to tell one that Autumn was with us.

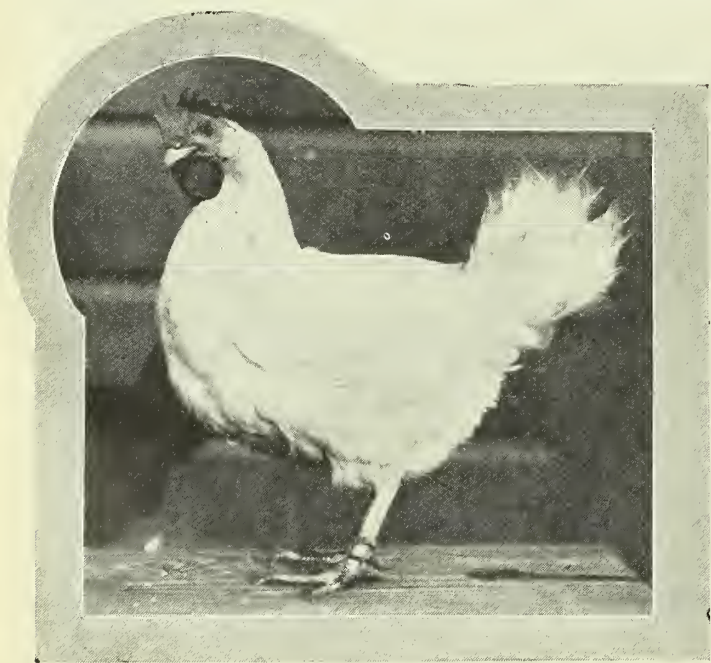
I passed along the hedge and completed the first field, and, incidentally, the *First Mile*.

Farther along I came to an opening in the wooded field through which I—shall I say trespassed? In the distance I could see the roof of a cottage to which I directed my steps. Presently I came upon this little place and also upon the *Second Mile*.

Around this cottage were hundreds upon hundreds of Black Wyandottes and they were typical ones for sure. Their fine broad combs, their massive legs and beautifully-shaped backs made one think of the Shows to which I have to go so often. I passed along and came to another style over which I passed, and here I got into stubble ground. Walking was now far from pleasant, but keeping close to the hedge I soon came across the other wooded field and some splendid goats. I also here found the *Third Mile*.

Some little distance along I found a batch of late-hatched chicks which presumably had come from a neighbouring farm. I caught one or two and examined them; they were certainly promising young Leghorns, and they were in excellent "trim." I walked on through this bushy wood and arrived at an open valley which presented a picturesque scene, and presented the knowledge, also, of the *Fourth Mile*.

But it was now getting dark and I looked about for a short cut home. Walking through various lanes in which I came across many a hatch of chicks and many a pen of fowls, I arrived at my home safely and feeling all the better for having completed the *Sixth Mile*.



Hen No. C. 521.

[Copyright.]

Above is a portrait of the hen which, so far as we know, holds the world's record for laying, having produced 303 eggs in her first laying season, thus exceeding by a dozen eggs, hen No. C. 543, described in our January issue. Both were half breeds.

For quantity of stock, with any in the world, a few in America excepted. One owner's cheque for ducklings alone for the present year was never any week below £50, while of late it has reached from £70 to £80 weekly.

The State Statistician estimates the value of the poultry industry for 1912 on areas of one acre and over at £1,434,000, and it is always understood that the value of those kept on smaller areas approximate an additional one-third of the above. Altogether a conservative estimate of the value of the poultry industry is 20/- per head of the population.

A CONFIDENTIAL CHAT ABOUT SHOWING RHODE ISLAND RED FOWLS.

BY EDWARD T. DE GRAFF, AMSTERDAM, N.Y.

AS there is no subject more interesting or important to the true fancier at this time of the year, than his prospective show record at some local show, I will give the amateur a few confidential pointers that I have learned through years of experience in breeding and exhibiting Reds.

The unsophisticated amateurs that are learning the inside workings of the poultry industry, who

tising stage of the poultry business, I feel I should give the new beginners all the information I can, that will help them with my favourite breed, that will make them all the more successful. My colour plates published for last five years were not accidents but the results of the best brains in their respective lines carrying out my ideas, for the benefit of every breeder that ever owned a Red.



A Rhode Island Red hen.

[Copyright.]

generally believe all they read in the poultry press, always arouse my most sincere sympathy, for if they take in all the "Get Rich Quick" schemes promoted, they would soon be insolvent, and the honest element of the business has to suffer in due proportion.

If the following hints will help them to thoroughly understand what they will inevitably learn by experience, I will feel well repaid for my trouble. I find in the long run, that it pays all fanciers to pull together rather than endeavouring to oust your competitor and his stock, which is too often the case in many localities I have visited. As I have practically graduated from the showing and adver-

The unprecedented popularity of the breed can be quickly damaged by many more of the uncalled-for displays of jealousy that have taken place in the Red Clubs, and I sincerely hope that every breeder will henceforth join the Club and help to elect officers that will do all in their power to hold the breed before the public and educate them to their many good points.

I firmly believe in following nature for our ideals, in preference to the imaginary drawings, and I believe in due time that the Standard will be illustrated by pictures from life, much to the enlightenment of the amateur.

The Standard of Perfection is but the work of



A Rhode Island Red cockerel.

[Copyright.]

common mortals, after years of unsuccessful attempts to educate the amateur to correct ideals is still so ambiguous that even the judges interpretate its meaning differently, and a large exhibitor has to show all styles and colors of Reds to be sure of having something strong in the particular point that each judge may consider best from his point of view.

It is useless to try and buy a Red guaranteed to win a first prize (although he might be good enough to be the prize winner), still, I have seen specimens entirely overlooked by the judge that were openly pronounced by the breeders present to be the best bird in the show, and I have seen unplaced males shipped direct from the show, C.O.D., for \$100 each, and prove winners at their next show, so it is more or less a gamble where the prizes will be placed, although it makes an awful lot of difference to the party that gets one.

While some judges look at colour only, still it is generally admitted that shape should be considered above colour, and the oblong type of the Reds is one of the strongest characteristic points of the breed, and also one of the most important from the utility standpoint, and should always receive most important consideration in selecting a winner or breeder.

A well developed Rose Comb Cock shows the superiority of the Reds over other breeds, as the traced oblong square would represent the size of body of the average Plymouth Rock or Wyandotte, while the Red shows additional breast and keel, that favourite portion that all lovers of well-cooked poultry like at any age.

Few specimens of the Red hen family show the emphasised type of the breed better than this hen, as the oblong block almost stands out to perfection, and her horizontal lines together with lack of curves, gives her the almost ideal body dimensions, with the capacity to manufacture eggs in large numbers all the year round.

One of the first points considered by the new beginner is the head of any bird, and if it has a five point comb then it is all right, and if not, it is no good in their estimation, proving that a little learning is a bad thing. I consider other heads to be as good as you will find on any prize winner, and there can be different head formation which make ideal breeders.

Nearly all pictures are taken from the side, while front views show many very important points that the side view cannot determine. Select your birds with wide bodies, well developed breasts, erect carriage of head, and, above all, with strong thighs and legs well spread, as this denotes strength and good vitality.

To the average breeder the word symmetry means everything or nothing as they may see fit to take it, but my famous bird "Amsterdam" was about as good an all round symmetrical male, every point considered, as has been produced. A

cockerel just as he should be when in perfect feather.

Very often we see an extra large specimen of the breed, that to the average person looks the perfection of all they could desire, but from the fancy breeding standpoint, always fight shy of these 11 or 12 pound Red males, as they are not practical, and mostly good to look at.

Often we find cocks that are almost perfect in colour in every section, but when fully grown they lack pounds of ever reaching the weight required. This type should never be given a first prize no matter how good the colour, and I have never seen any great results come from them as breeders.

Some strains of Reds while having extra good colour have run to the game type, having extra long legs, short backs, high heads, long tails and too much fighting capacity generally.

The day is here, when we have got to pay more attention to the type of the birds we are using in our breeding pens.

Then there is the Leghorn type of Reds with long legs, small bodies and extra large combs, and continually crowing, which makes a very poor combination for a good red, although the colour may be all we could ask for, so that I hope you will see from above that there is more than colour in selecting your choicest birds for the shows.

There is the bird which appears to many to be an extra fine specimen in nearly every respect, but he has what is called a pinched tail, having only a few feathers and those all pinched together, which is a very common defect in some strains, and makes a very bad breeder especially of females.

Take for instance a strong vigorous cock with his tail carried too high. This is a defect in a large number of males, and a judge wants to examine very carefully at the root of the tail feathers of some birds to see if they have not been kinked or broken, so as to give a naturally high tailed bird the appearance of a low tailed bird. I have often seen this done.

I believe one of the strongest points that helped "Mohawk Chief" to win Colour Special at Madison Square Garden was his extremely fine development of tail. The dark glossy green shade that few have ever shown. It is a weak point of the breed, but so many males have partly developed tails when on exhibition coming either from lack of growth or being removed.

While the Standard description for Red females reads the same for all ages, still it should be explained in some manner that few, if any, hens ever have the colour they had when pullets, and when they do it is often through lack of any strain on their systems through laying. It is an undisputed fact that all hens lose their colour after laying very heavily, but who ever heard any complaint over hens laying too many eggs, especially in winter when Reds are right in their element.

A SMALLHOLDER'S FIRST YEAR.

CHAPTER III.

A QUESTION OF LIVING ACCOMMODATION.

THE smallholder's first thought, after securing his land, is with reference to the bungalow or dwelling house that he will occupy. It has not been possible for us to deal with this subject before since other matters were of more importance, seeing that they were more topical. In this issue, however, we desire to refer briefly to the question of housing.

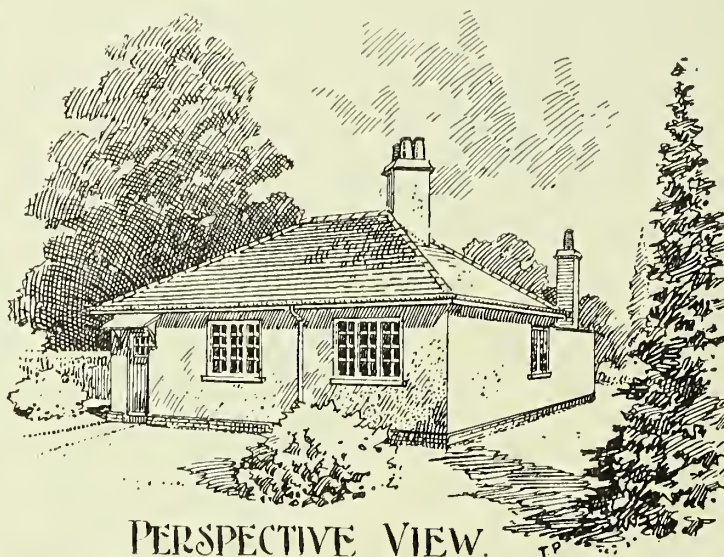
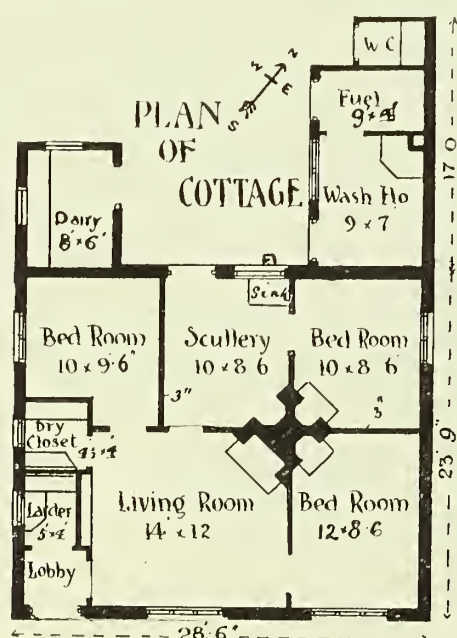
In many instances, occupiers of land will find that, even if the houses are not already erected, the land company who has effected the sale of land are willing to build according to the purchaser's wishes. In a case of this kind it is frequently best to follow such a plan, for, as in the case of the smallholder's colony at Fawkham, the company is

houses must be replete with every labour saving device.

One very important point to remember is to discover, when the site has been secured, whether there are any special building restrictions under the local authorities. In all instances, we believe, that it is necessary for the plans to be passed, but if everything is in order this is neither a lengthy nor troublesome business.

There are a number of materials that can be selected for building purposes. Brick houses are undoubtedly the best, but the initial cost is rather heavy. Again, wooden framed, cement block houses are very good indeed, and they can be depended upon to keep the inmates in comfort. Other manufacturers use iron and wood; others wood alone, and if a reputable firm is employed either will last a very long time.

When cement block, wood, or iron and wood



A Concrete Cottage.

in a position to erect dwelling houses at a very reasonable price. Still it is always advisable to look carefully into the tender that is made, and in some cases wise to secure quotations from other sources.

We realise that all would-be smallholders are not in a position, or perhaps do not consider it an advantage, to purchase the land outright, but we need hardly discuss this question, as when land is rented, either on lease or agreement, the house is already in existence.

The demand for the bungalow type of house has been considerable during recent years, and many builders have laid themselves out specially for this form of construction.

Smallholders do not require large dwelling houses as a rule, but seeing that labour is always an important consideration under these conditions, such

houses are used, it is customary for the purchaser to pay for the foundations, the maker only supplying the superstructure. This is an advantage to the buyer for it is usually possible to contract for this locally at a cheaper rate. It is better, however, to obtain from the builder of the house all necessary particulars so that there may be no misunderstanding, and these can be passed on to the local man.

The drainage system, that is, the underground section, must also be contracted for separately, and here again strict attention must be paid to the requirements of the local authorities. There is very little doubt but that the old system of earth closets is a very good one, but most local authorities require the installation of the cesspool system. This is not an expensive undertaking, consisting of a cesspool with a liquid distributing tank some eighty feet away from the dwelling house.

The water supply must be reckoned with, but attention will have been paid to this point at the time of selecting the site. What system is adopted must depend entirely on the nature of the supply and must, therefore, be dealt with according to local conditions.

It is impossible for us to give a description of every type of house, therefore we content ourselves with furnishing a few details of a concrete bungalow.

The outside walls are either two half-bricks in thickness, tied together with galvanized wall ties, or cement concrete 7in. thick, rough casted. Wooden walls are cheaper than brick or concrete, but there is the cost of painting and the fact that painting is difficult with flowers and evergreens. Also there is the risk of rats and fire. The estimated cost of a single bungalow, including everything but rain-water tank and pump and drainage, which depends on circumstances obviously, at £200, brick and patent tiles being used. Concrete under favourable conditions might be £180. Two cottages side by side, bungalow form, should be proportionately cheaper than one.

We prefer, in the country, where there is plenty of room, the bungalow type of cottage. The square bungalow has certainly a very strong case. It is economical—there is more walling to a 50ft. by 18ft. building than a 30ft. by 30ft. one. The bedrooms are not limited in size by the buildings below; the space occupied by stairs is utilised, and there is no cost of stairs or of the areas leading thereto. Floors can be made of boards nailed on to the concrete. Cinders can be put in the aggregate for the purpose. Fine floors can also be made with linoleum or concrete, the linoleum only being put on, of course, when the concrete is dry.

We give an illustration, ground plan and elevation, of this type of concrete cottage, since readers will be able to form a better opinion of the room accommodation and arrangement than from a description alone.

CHICKENS FEATHERING.



HERE is an enormous difference in the rate at which chickens form their feathers, a difference which is, of course, more pronounced in birds of different breeds, but also present to a greater extent than one would suppose, among chickens of the same breed. It is not, however, always a disadvantage for birds to feather just a little slowly. In practice one generally observes that those chickens which grow their frame first, and then their feathers, develop into infinitely better birds than when the growth of both frame and feather are reserved. We often come across very neat and trim looking pullets with perfectly formed feathers, but prematurely old, and with almost the appearance of adult bantams. Such birds seem to have completely escaped the "flapper"

stage and they seldom reach the standard size of the breed to which they belong; throughout their life they are stunted and dwarfed not only in looks, but, what is much more important, frequently in their economic qualities also. On the other hand there are chickens which seem to grow right away from their feathers, big, raw-boned birds, hard and muscular when handled, even when still in their fluffy down. The latter are the birds which ultimately make the best stock. Of course, the feathers of chickens must not be indefinitely delayed, as there comes a time when nature needs assistance. About the month of May, provided the progeny are from healthy and robust parents, and their management has been conducted on correct lines, growth is very apparent and the birds appear to be making very excellent progress, but with the approach of midsummer it is frequently noticed that chickens which up to this time have been perfectly satisfactory, appear to be flagging and are practically standing still. The explanation for the check is that their plumage is now complete, and after the strain of feather formation the chickens are slowly recuperating. This stoppage in growth, however, is only of short duration, and with judicious management at this critical period they will soon get over what is purely a transition stage, and their inactivity and lassitude will rapidly disappear. It is a very wise measure at this stage, if circumstances will permit, to remove the chickens on to fresh and untainted ground. Probably this is one of the most essential requirements in the successful rearing of chickens. Birds on farms, or other large tracts of land, very rarely have any difficulty, when the time arrives, to form their adult plumage; it is, as a rule those reared under conditions where a change of position is not always an easy matter which require any particular care. Several things, however, may be done for chickens reared in confinement to counteract many of their deprivations, since the privileges enjoyed by birds with their freedom may be brought, to a modified extent, within the bounds of possibility. In the first place the rearing ground should not be stocked to its fullest capacity, and should be divided into sections, allowing each portion to be used in rotation as much may be done to freshen a run if it is frequently vacated. It is also necessary for the proper feathering of the chickens that their food should be of a feather-forming nature, and here again birds reared in the open have a decided advantage as they can secure worms, grubs, and other insects from the soil, and there is nothing more helpful for assisting the chickens to feather. This also is a case where the captive chickens may be indulged by supplying them with one or other of the advertised preparations, such as granulated meat, or fish meal, which prove excellent substitutes. If, however, the poultry keeper has the time at his disposal, and cares to take the trouble of digging for worms, the real thing may easily be supplied. Green food should also be given freely in the form of tender young shoots of practically any kind.

THE TRANSYLVANIAN NAKED NECK FOWL.

SOUTH-EASTERN EUROPE is responsible for two breeds of poultry with peculiarities very distinctive. These are what we call the Danubian Goose, with their long, abundant posterior feathers, and the Transylvanian Naked Neck fowl, of which latter a fine illustration is herewith given. In neither case has any explanation ever been forthcoming to account for these divergencies from the ordinary types. So far as the Naked Neck is concerned, the only suggestion that we have heard is that when roosting or on the nest, the neck is drawn on to the body so that the absence of feathers enables the head to be almost buried. Why that should be an advantage is not apparent. The same peculiarity as to bare neck is met with in a few wild birds such as the vulture, and with these there appears to be an equal absence of reason. That there is some object is certain. Nature does not develop and maintain variations without some good purpose. We may hope that in process of time knowledge may be so increased as to enable a judgment to be formed.

The name is derived from the naked neck on the one hand and a portion of Eastern Hungary on the other. That this breed is by no means restricted to Transylvania is evident, though possibly that country may be the base. Travellers record meeting with it as far West as Austria, in Hungary, Servia, Bulgaria, Roumania, and Bessarabia, which last-named country is now part of Southern Russia. Mr. Edward Brown reported seeing many of these birds during his tour in the Balkans a few years ago. It is further stated that Naked Neck fowls are to be met with in Madagascar, but as to that we have no definite information. Possibly the last-named island may be the place of origin, and specimens have been taken thence to Constantinople and the Black Sea. Or, more probably, the origin, could we trace it, would be found in Central Asia, that mine for new breeds which has never been explored, and the breed was disseminated from there into Europe and by Persia or India to Madagascar. Whatever way the birds arrived, the fact may be accepted that they are distributed over a fairly wide area, and that they are regarded with great favour. In proof of that Mr. Albert E. Wragg, writing in *Poultry* nearly seventeen years ago, stated that by way of experiment he had placed under a hen thirteen shop eggs from Austria, which would probably mean Hungary, from which only one chick was hatched, and that proved to be a Naked Neck.

Such appears to be all the information about the breed. As M. Cornevin, in his well-known work, says, "it is impossible to say if this singular race has originated in the Carpathians and at what period; we only know that they are common there. In a recent journey in Transylvania we have proved

that they are not increasing in the country, but are more often pressed back by the ordinary grey fowl." It would be welcome if some of our Eastern European readers could afford more information than we possess.

The appearance of the birds is peculiar in the extreme. In size they are medium (4lb. to 6lb.), with longish neck and legs, giving a somewhat stilty look, as the thighs are small. The body is round and well developed, flat and muscular in front, with large, strong wings. The cock's tail is full and carried almost horizontally. The head is neat, and the comb single. It is on the head and neck where the Naked Neck differs from other poultry, for the head and neck for four or more inches down are entirely denuded of feathers, save that there is a full, clear-cut band of soft feathers a little above the shoulders with a bare ring below. The head and flesh thus left uncovered are bright red, and when seen for the first time the effect is very startling, but cannot be regarded as pleasing. As a rule the best specimens are pure white in plumage, so that the contrasts are great. A few coloured plumaged Naked Necks are seen, mainly reddish brown, in which the bare head and neck do not look so prominent.

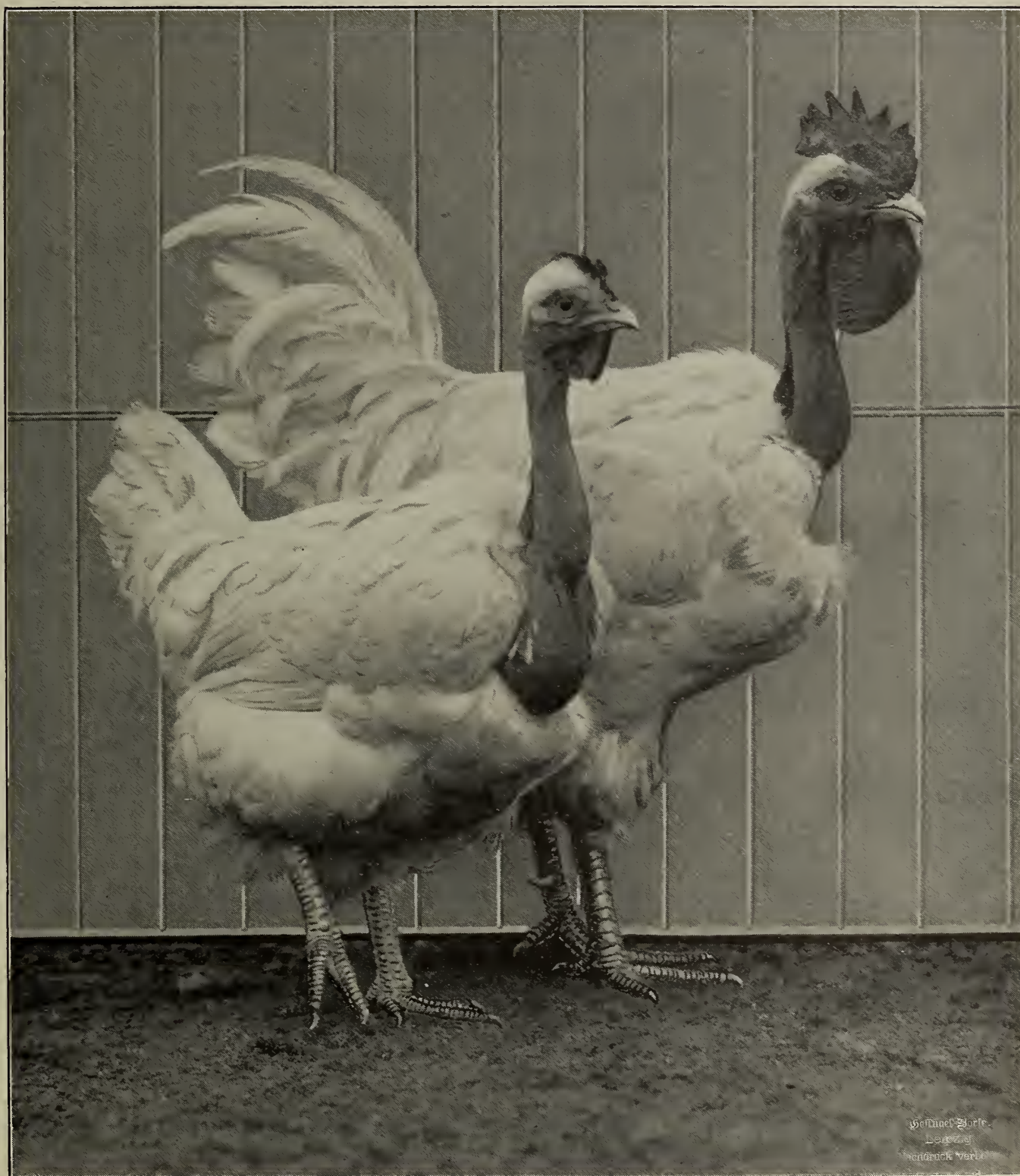
The peasants of the countries named prefer this breed of all others, for the reason that they are so hardy and vigorous. In fact, it is stated that they never suffer from disease, which may be an exaggeration, and, therefore, we may say "seldom" instead of "never." Their activity is very great, and during the greater part of the year they find all their own food—an important point where prices realised for eggs and chickens are low.

Dead in Shell.

If anyone could arise and show us how to remedy 50 cent. of the chickens that die in the shell he would become the greatest life-saver in existence, says the *New Zealand Poultry Journal*. Each year we have the dreaded bug-bear of dead in shell to meet. Few of us that hatch in large numbers escape it. We may use every precaution, yet the number will steadily increase in spite of us. To make matters worse, we constantly have to reply to beginners who will tell us they get 80 chicks out of 90 eggs, and beseech us to enlighten them why the other ten died in shell. At the same time we would be filled with joy if we could get 60 out of 90 in 10,000 eggs for the season.

Hatching on board ship.

The *Natal Mercury* records that the experiment reported by us some time ago, of sending eggs to South Africa in an Hearson Incubator, on board the S.S. Inanda, has proved satisfactory. To fit the time of arrival the machine was not heated up until a week of the voyage had passed. On reaching Durban the eggs were transhipped to another machine in readiness, as that was the nineteenth day. Testing showed that out of the 48 eggs 17 contained live chicks, 15 were clear, 8 were dead in shell, and 8 partly developed. The 17 all hatched out and were strong and lively. The time of year was not a good one to obtain strongly germed eggs, but this result shows that such a system has great possibilities.



A Pair of Transylvanian Naked Necks.

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THE CLASSIFICATION OF BREEDS.



VERY beginner likes to know something about the various breeds of poultry, and in as brief a manner as possible we give some particulars concerning the better-known breeds and their sub-varieties, omitting only those that are not recognised in this country or not sufficiently established to merit description. In the first place we may group all under two main headings, sitters and non-sitters: the former including Brahmas, Cochins, Dorkings, Orpingtons, Wyandottes, Plymouth Rocks, Langshans, Game, Sussex, Rhode Island Reds, Faverolles, Indian Game, Malays, Aseel, and La Bresse; and the non-sitters: Leghorns, Minorcas, Spanish, Anconas, Hamburgs, Redcaps, Houdans, Scotch Greys, Polish, and Campines. These may again be divided into groups denoting the origin of the several breeds, as follows:

British breeds: Dorkings, English Game, Orpingtons, Sussex, Hamburgs, Redcaps, Scotch Greys.

Asiatic breeds: Brahmas, Cochins, Langshans, Indian Game, Malays, Aseel.

American breeds: Plymouth Rocks, Wyandottes, Rhode Island Reds.

French breeds: Houdans, Faverolles, La Bresse, and several lesser known, such as Crève Cours, La Flèche, &c.

Spanish breeds: Minorcas, Spanish.

Italian breeds: Leghorns, Anconas.

Other Continental breeds: Campines, Polish.

DESCRIPTIONS.

We may now proceed to discuss the breeds and their sub-varieties in their alphabetical order without regard to their origin.

ANCONAS: A small, active breed with black-and-white mottled plumage, large single comb, white lobes, and yellow legs mottled with black. A rose-combed variety is also bred. A prolific layer of large white eggs.

ASEEL: A small, stoutly-built breed of pugnacious character. Blacks, whites, reds, and spangles are bred, chiefly for exhibition purposes.

BRAHMAS: Very large, with upright carriage, heavily feathered shanks and feet, but moderate fluff, pea or double comb, red lobes and yellow legs, bred in two varieties, dark and light; very hardy, a good winter layer, and the foundation of many of our modern hardy breeds.

CAMPINES: A small breed from Belgium with barred plumage, moderate-sized single comb, white lobes, and slate-blue legs; silver and gold varieties are bred. A good layer and quick grower for producing early table-chicken.

COCHINS: A large breed with an exceptional amount of foot feather and fluff, completely hiding the thighs and shanks, rounded shape, with rising cushion, small single comb, red lobes, and yellow legs; four varieties—buff, white, black, and part-ridge; very hardy, moderate layer of brown eggs.

DORKINGS: A very large square-bodied, long-breasted breed, admittedly the best pure variety for the table, with fine bone and good-coloured flesh, white or flesh-coloured legs, five toes on each foot, and red lobes. There are four colour varieties—darks, silver-greys, whites, and cuckoos; darks may have either a single or rose comb, silver greys single, and whites and cuckoos rose-combs. A red variety is also bred, but is not standardised.

ENGLISH GAME: The genuine fighting Game of the Georgian period, but now divided into two distinct classes—Old English and Modern. The former are moderate-sized, compact, hard plumaged birds of the actual fighting kind, and are useful for the table, and good layers. Small single combs, red lobes and faces, and either white, yellow, or willow legs, according to the variety. Modern Game are very long in the shank and neck, and are bred entirely for exhibition. The colour varieties in Old English include spangles, black reds, brown reds, white, blacks, Birchens, Piles, Duckwings, Muffs, Hennys, &c., and in Modern Game black reds, brown reds, Piles, Duckwings, whites, blacks, Birchens, &c.

FAVEROLLES: A large modern composite breed from France, a good layer and excellent for the table, made up from Brahmas, Cochin, Houdans, and Dorkings. Has a small single comb, red face and lobes, white legs with a little feather, and five toes on each foot. The head is furnished with a muff, or whiskers and a bib. Three varieties are bred—salmon, ermine, and black.

HAMBURGS: Small, sprightly birds with rose combs, in which the leader, or spike, stands straight out from the head, and large round white lobes. Good layers of moderate-sized white eggs. Five varieties are standardised—blacks, silver- and gold-spangled, and silver- and gold-pencilled. Blacks have dark slate or black legs, and the others slate-blue legs.

HOUDANS: A handsome French breed with large globular crest, muff, and bib. A leaf-shaped or butterfly comb, black-and-white mottled plumage, white legs mottled with black, and five toes on each foot. Good layer of large white eggs, and excellent for table purposes.

INDIAN GAME: A very large heavy-boned breed, with massive limbs and broad chest, pea comb, small red lobes, and yellow legs. Cock has bright glossy black plumage, with rich dark red on shoulders and wings; hen has dark brown ground colour pencilled with black. A fair layer, and a great favourite for crossing with Dorkings and similar breeds to produce large table-fowls.

LA BRESSE: A moderate-sized breed of active character, with fair-sized single comb, small white lobes, and slate-blue legs. Bred in three colour varieties—white, black, and grey. A prolific layer and very quick grower.

LANGSHANS: A large breed with small single combs, and red faces and lobes. Four varieties are recognised—Modern blacks, whites and blues, and Croad blacks. The moderns are long in the limb, and of more gamey character. The Croad or original Langshans are moderately long on the leg, but large-bodied birds. All have a little feather on the legs. Blacks have black legs and very dark eyes; blues and whites have slate-blue legs. Good layers of very rich brown eggs and excellent coloured table-birds. Croads are the most reliable for utility purposes.

LEGHORNS: A very popular race of small active fowls, with large single combs, white lobes, and yellow legs. Numerous varieties are bred, including whites, blacks, buffs, browns, piles, duckwings, cuckoos, blues and partridges. Prolific layers of large white eggs, small eaters, and generally regarded as the best of the non-sitting breeds.

MALAYS: A large and tall Asiatic Game breed, somewhat ungainly-looking, with walnut shaped comb, red face and yellow legs. Bred mainly for show purposes. Black reds are usually seen, but whites and piles are also bred.

MINORCAS: A very popular moderate-sized breed, with graceful carriage, large single comb, large almond-shaped white lobes, and black or dark grey legs. Blacks are usually seen, but whites are bred (with slate-blue legs), and also rose-combs. Prolific layers of large white eggs, and do exceedingly well in confinement. A favourite breed for exhibition.

ORPINGTONS: A very large deep-bodied cobby breed of modern introduction, with small single comb, and red face and lobes. The varieties bred include blacks, buffs, whites, spangled, Diamond Jubilee (resembling a spangled game fowl), and cuckoo. Blacks have black legs, spangled black-and-white mottled, and the others pinky-white or flesh-coloured legs. All are very hardy, excellent layers of rich brown eggs, and make first-class large table-fowls.

PLYMOUTH ROCKS: A very large and hardy American breed, with upright carriage, small single combs, red faces and lobes, and yellow legs. There are four varieties—the Barred, with cuckoo markings, being the original and most popular, the others being white, buff, and black. Very good winter layers of brown and tinted eggs. Fairly good table-birds.

POLISH: A very handsome continental breed, now only kept for show purposes, with large, rounded crests, small horned comb, and slate-blue

legs. The numerous colour varieties include gold spangled, silver spangled, white, black, white crested black, white crested blue, chamois or buff-laced, &c. Rather delicate when young, but fairly good layers of white eggs.

REDCAPS: A popular utility breed in Derbyshire and Yorkshire, with very large rose comb, slate-blue legs, and plumage somewhat resembling a gold spangled Hamburg, though with a larger body. A useful breed for laying.

RHODE ISLAND REDS: One of the newer American breeds, and comparatively little known over here at present. Large, very hardy, with either small single, or rose combs, red lobes, and yellow legs, with red plumage, and black tail. Very good layers, and a first-class general purpose breed.

SCOTCH GREYS: Popular in Scotland, but a useful all-round breed, with small single comb, red lobes, cuckoo or barred plumage, and white legs mottled with black. Good layers, and generally hardy.

SPANISH: Once a popular exhibition breed, but now seldom seen, its place having been taken by the Minorca, which it resembles except for the very large white face of kid-glove texture. This characteristic has been bred for to such an extent that the breed has been spoiled for general purposes.

SUSSEX: One of the best of the modern composite breeds, especially for table purposes. Large, with longer bodies than Orpingtons, and generally finer in bone, with small single combs, red lobes, and white legs. The varieties recognised are red, light, and speckled, the light resembling the light Brahma, and the speckled the Jubilee Orpington. A brown variety has also been bred.

WYANDOTTES: A very popular American breed, with cobby, graceful shape, rose combs (following the lines of the head), red lobes, and yellow legs. The varieties bred include silver-laced, gold-laced, whites, blacks, blues, buffs, partridge, silver-pencilled (these two resembling partridge Cochins and dark Brahmas respectively), Columbians (like light Brahmas), buff-laced, blue-laced, and cuckoo. Piles and white-laced blacks are also being produced. Very hardy, excellent winter layers, and make good plump table-fowls. A first-class general purpose breed.

To these several additions may be made, including Yokohamas, a Japanese breed with very long tails that is becoming popular for exhibition; Silkies, another exhibition breed, in size, midway between a bantam and a large fowl, with curious silky plumage, blue lobes and skin, purple comb, and a small crest; Lakenfelder, a small Dutch or German breed, with white body and black hackle and tail; rose-comb Blues, a large composite breed with blue plumage and rose combs; Frizzles, in which all the feathers naturally curl back, &c.

BANTAMS.

The midget breeds of poultry deserve special notice, for the reason that although they cannot properly be regarded as a source of profit for general purposes, there are many people with little accommodation who would find a pen of Bantams more convenient for a hobby than a pen of large poultry. We have frequently seen a breeding-pen consisting of four hens and a cock kept in a combined house and run measuring 8ft. long, 2ft.6in. wide, and 2ft.6in. high, of which the roosting quarters took up 2ft. of the length, and as many of these small birds do no harm in a garden they may be trusted to run at large where other poultry would do serious damage. Bantams are kept very cheaply, being fed much in the same way as ordinary fowls, and their small eggs are always welcome, whilst even the young birds make tasty dishes on the table. But most people keep Bantams as pets or for exhibition purposes, and in the latter case there is undoubtedly plenty of scope for fanciers to take up one of the many breeds.

Bantams have been produced by dwarfing large poultry, and consequently many of the midget varieties are merely miniature representations of the large breeds. Modern and Old English Game, Indian Game, and Malays, are all bred successfully in various colours, and the two former are among the most popular for show purposes. Rose-comb Bantams, bred in two varieties, black and white, have combs and lobes like Hamburgs, and are good layers. Pekin Bantams are practically miniature Cochins, and are bred in the same colours, whilst silver and gold Sebrights are more distinctive, having laced plumage similar to but finer than that of a Wyandotte, with a rose comb and erect leader, red lobes, and slate-blue legs. Japanese Bantams have very short, squat legs, and the tails are carried at such an angle as to nearly touch the head, whilst Booted Bantams have a great amount of strong quill feathers about the feet. Other miniature breeds that are kept include Polish, Brahmas, Wyandottes, Plymouth Rocks, Frizzles, Scotch Greys, and many more of the large breeds are being reduced in the same way.

EARLY DAYS OF CHICKENHOOD.

By J. S.

IN rearing any kind of stock a good start in life is half the battle, and chickens are no exception to the rule. Thus the importance of proper management during the first six weeks must be apparent to all. The chief object should be to keep the chickens growing, and to be sure that satisfactory progress is being made in this direction. Personal attention to the wants of chickens goes far to overcome many of the little pitfalls incidental to their rearing. However good the attendant may be, or however expert the poultryman, a little personal supervision on the part of the owner is a factor militating against slackness, to which even the most conscientious are occasionally prone. Neglect in the early stages means a check to growth and condition, and these can only be regained after weeks of studious care and attention. Even then, the evil may not be entirely obliterated.

When the chickens have all made their exit from the shell the hen should be supplied with food and water. Nothing special in the way of food is required, and wheat or a little mash should be given to her. After she has satisfied her appetite she should be replaced in the nest-box and allowed to brood them until they are perfectly dry. The hen and her family may then be removed from the sitting-box to a roomy coop, which should have been previously prepared for her tenancy.

By the time this is accomplished the chickens will have reached the age—twenty-four or thirty hours—when they may partake of their first meal. A board should be placed on a level with the

frame-work, at the front of the coop, and the food placed thereon. The slats of wood are sufficiently far apart to enable the hen to protrude her head and neck so that she may cluck and teach her charges to peck. What the first feed should consist of is very largely a matter of personal opinion, and each individual may follow his own past experience or preconceived ideas as to the best method of feeding. We have known men equally successful who have adopted entirely different methods. It may, therefore, safely be said that there is no one method that stands out prominently head and shoulders above all others. Common sense must be used in this direction, and the food, of whatever nature, should be given in proper quantities; it must not be allowed to sour by long exposure; it must be properly mixed, if of a sort that requires mixing: and the grain should be of good and sound quality. If all these points receive attention, then there is little to choose between the various systems.

Some of our older breeders swear by the old system of eggs and stale breadcrumbs, and we are bound to admit that some of the best and most robust chickens we have seen have been fed in this manner for the first two or three days of their lives. There are others who declare that this form of food causes constipation, which is beyond a doubt perfectly true, but, at the same time, the binding nature of the hard-boiled eggs may be altogether neutralised by liberally providing lettuces, the tender under leaves of cabbages, or

similar green-food, finely chopped, and mixed with the hard-boiled egg and breadcrumbs. There are others who declare in favour of the dry system, and there are those just as strong adherents to mash feeding. It is, however, a very unwise policy, because a man has been successful in a certain direction, to condemn all other methods that are opposed to his own.

Personally we are much in favour of combining the two systems of feeding. During the first month the chickens should be fed entirely on small grains, some excellent kinds of which are on the market at the present time. Those, however, who prefer to buy the seeds separately and make their own dry mixture will find the following a suitable preparation, containing, as it does, the necessary elements for the basis of a large frame and the encouragement of rapid growth: Wheat (broken), 3 parts: dari, 2 parts; canary seed, 2 parts; millet, 2 parts; coarse oatmeal, 2 parts; maize (broken), 1 part; hemp, $\frac{1}{2}$ part; buckwheat, $\frac{1}{2}$ part; rice, 1 part;

considerably aids digestion. When the chickens are a month old two feeds a day of soft food should be supplied, the first about 7 a.m., and the other about 3 o'clock in the afternoon, consisting of ground oats and barley-meal in equal quantities, or chicken-meal scalded in hot water mixed with either of the above. Coarse oatmeal and milk made into a stiff porridge is also excellent, and when they are so fed their growth is very apparent. This, with the addition of tender green-food and small quantities of cut green-bones, provides all the constituents needed not only for laying a foundation of a robust constitution, but for maintaining it.

The coops should be placed in a dry position which is sheltered from the east. This is always necessary, but especially so early in the season. It is often claimed that chickens should rough it and become accustomed to the severity of the weather by exposure. With this we totally disagree. We would not, however, for one moment suggest that they should be reared in a very hot



Enjoying the blessings of a free range.

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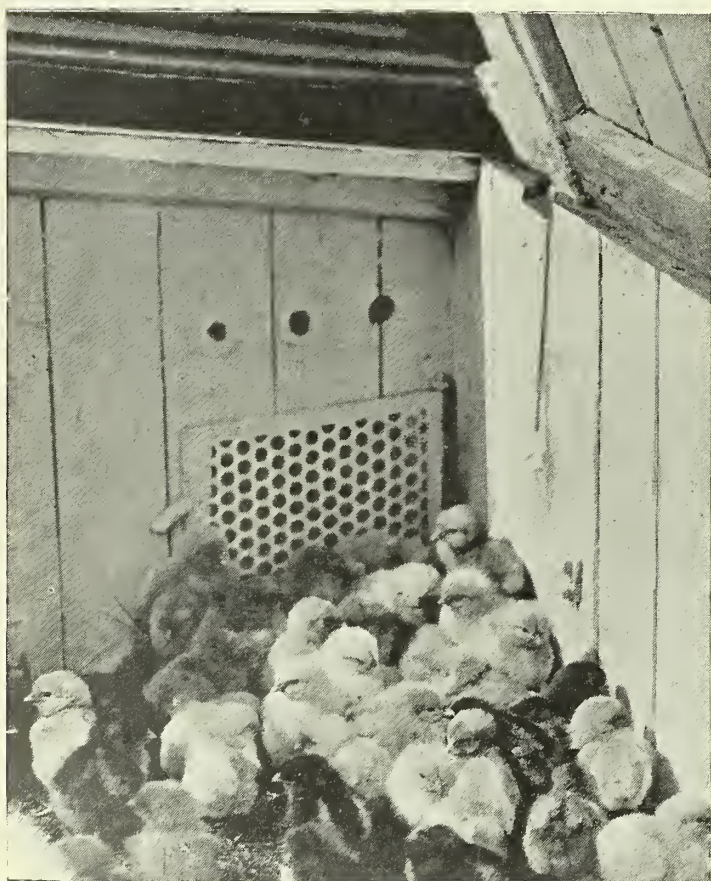
meat scrap, 1 part; grit, 1 part. This mixture may be given from the first, and continued for three or four weeks, when the small and more expensive seeds, such as canary seed, millet, and oatmeal, may be omitted. One of the great advantages of the dry system is that it contains so great a variety of foods, which is one of the secrets of success in rearing chickens. In addition to this the saving in labour is very considerable, while there is no doubt that the mortality is lower. For one thing, there is not the same tendency to diarrhoea, which in some seasons is quite a scourge. In order to obtain the full benefit of dry feeding it is necessary that the chickens shall be compelled to work for their food, and, therefore, the seeds should be scattered among chopped straw or chaff so that it brings their natural scratching propensities into play. This

atmosphere, and be treated like a delicate hot-house plant, but there is a happy mean between the two extremes. Whatever the state of the weather, and at all times of the year, shelter is an absolute necessity, and where natural shade, in the form of bushes and scrubs, is not obtainable, some sort of artificial protection should be erected. Each poultry-keeper, by exercising a little ingenuity, can improvise something that will afford temporary shelter: straw plaited into hurdles, after the style of those provided for breeding ewes, or canvas attached to wooden pegs, which should be about thirty-six inches apart, and stuck into the ground after stretching the canvas perfectly taut, affords excellent shelter, and can be moved about according to the direction of the wind. The coop should be made sufficiently large to ensure the hen having

freedom of action, and for the safety of the chickens, since unless the coop is roomy the youngsters may be trampled to death. A wooden floor to the coop is necessary when the soil is of a heavy clay nature, as the cold and damp arising therefrom are injurious to both the broody hen and her charges. Under these conditions the floor provided should not be nailed to the bottom of the coop: instead of this it should be made loose or merely hinged on. The only objection to the floor being a permanent part of the coop is that the work of cleaning it is not so thoroughly carried out, and this is of the utmost importance. When the floor is loose all that is necessary at frequent and regular intervals is to

the first batch of chickens compared with the second or third or later hatches, when they follow one after the other on the same patch of land. There is, as a rule, no comparison between them. The first lot have enjoyed the fresh sweetness of the soil, the goodness of which has completely departed long before the time that the last lot appears.

If rigid attention be paid to cleanliness, if the coops are regularly moved from place to place, and if adequate shelter is provided, ordinary coops give all the accommodation that is necessary until the chickens reach the age of six weeks, at which time the hen will probably leave them to take care of themselves.



Newly-hatched chickens in a brooder. Copyright.

remove the coop from the floor, when it may be well scrubbed before being placed in position again. When plenty of space is available for the rearing ground, so that the coops are placed some distance apart, the hen may be allowed to wander at large with her chickens after they are a week or so old, but if space is cramped it is safer to keep her confined, and there is small danger of the chickens straying far away from their imprisoned mother. It is wise, under these latter conditions, for the coops to be moved every day, otherwise the ground will become tainted and this undoubtedly will give a serious check to the condition of the chickens. The importance of a continual change is at once suggested by the growth and general appearance of

DISPATCHING EGGS FOR HATCHING.

DURING the next three months many thousands of sittings of eggs will be distributed by rail and post throughout the kingdom, and to those who are contemplating embarking upon this branch of the poultry business for the first time, a few words of advice on the best methods of packing and dispatching eggs will no doubt prove useful. It is very annoying to the purchaser and equally so to the vendor when eggs are broken in transit. Whether the former may have invested the modest sum of five shillings or the princely one of two guineas in a sitting of eggs, his language on opening the box with infinite care and uncovering its contents with visions of Palace winners in embryo, only to find a collection of broken and cracked eggs, will emulate the atmosphere on a summer's day both in warmth and colour.

Wherever possible, it is advisable to send eggs by rail, as they invariably reach their destination more quickly and in better condition than is the case when the parcel post is requisitioned. Admirable as are the arrangements of our parcel post service, it is hardly a suitable medium for the conveyance of eggs for hatching, and anyone who makes use of it for such a purpose need express no surprise if the eggs, however carefully they may be packed, arrive in a chaotic condition. In dispatching by rail and by post (although in both cases the travelling is done by passenger train) there is this essential difference, that in the former case the package, labelled with the nature of its contents, is plainly visible to the eye and may reasonably be expected to receive care in handling; in the latter case the box is packed indiscriminately in a hamper with a miscellaneous assortment of parcels, and therefore does not receive—nor can it be expected to receive—any special care. Anyone who has witnessed the manner in which these unwieldy hampers are bundled in and out of the luggage vans need seek no further for the cause of eggs being damaged when sent through the post. There are, however, certain obscure country places where there is no choice in the matter—the eggs must be sent by parcel post or not at all.

In many cases where eggs are sent by rail breakage is due to carelessness in packing, for if this is properly done nothing but gross carelessness and ill-usage on the part of the railway servants will cause the eggs to arrive in a damaged condition. Eggs for sitting should be packed in the divisional wood or cardboard boxes, which are easily obtainable from the appliance makers. Boxes of all kinds, shapes and dimensions, are used for the sake of cheapness, but such a "penny wise and pound foolish" policy is not to be advocated. It does not much matter whether wood or cardboard boxes are used, so long as a good, stout, well-made sample is obtained. I have used both with equally good results, though for very long journeys and in cold weather I prefer the former, as they afford more protection against frost.

A divisional box having been obtained, it may appear to the novice the simplest thing in the world to pack one egg in each compartment. Certainly, this is so, but the condition of the egg on arrival at its destination is largely dependent on the manner in which this packing is carried out. I find that returned infertiles generally arrive in a more or less damaged condition, and while it may be that the railway officials do not exercise so much care over a returned box as they do on its outward journey, I believe that in the majority of instances the breakages are due to the eggs not being packed in a proper manner. Hay, chaff, or coarse bran may be used for packing, but I generally use the latter. My method is to sprinkle a little bran in each compartment, so that the bottom of the box is well-covered. Then wrap each egg carefully in piece of soft paper and place it large end downwards in the box, taking care that it stands in the centre of its respective compartment and does not touch the wood. Pack bran firmly but carefully round the egg, so that it cannot move, fill the remaining space with the same material, and the lid can then be secured. The main points to be observed are: (1) That the eggs are firm and cannot be shaken about, (2) That they do not touch the sides of the box, special care being taken that the lid does not rest on the eggs. The lid of the box may be fastened on with cord or small screws, but on no account should it be nailed, as the jarring caused by this process would have a deleterious effect on the germs and probably spoil the hatch. Whatever method of fastening may be adopted, it is advisable to tie the box up with stout cord or string, not only as an additional security, but in order to facilitate handling during the journey.

One other precaution should be taken. The box must be labelled in large letters and in a prominent place, with some indication of the nature of its contents. Most egg boxes are printed in bold letters "Eggs with care," but it is advisable for anyone who dispatches sittings in any quantity to affix a specially-printed label bearing these words, or others of similar intent.

POULTRY MANURE AND ITS VALUE.

BY CARLTON HILL.

WITHOUT going into particulars as to the way in which soil is formed, it is necessary to understand the composition of the earth in which we grow our crops, before it is possible to consider the question of the manurial value of any fertiliser. The greater part of the soil consists of sand and clay, materials that are of no value as plant foods; but there are also other elementary substances present in small quantities, such as nitrogen, phosphoric acid, potash, magnesia, and lime, all of which elements are essential to plant growth.

An important point for the agriculturist to bear in mind is the fact that there is a large quantity of plant food present even in the poorest soil, a quantity that is enormously in excess of that required by ordinary crops. In an acre of soil to the depth of nine inches, with one-tenth per cent. of nitrogen—a quantity found in all but the very poorest soils—there is about 2,500lbs. of nitrogen present. Root crops will not take more than 100lbs. of nitrogen per acre and cereals about one half this amount from the soil, therefore there is sufficient nitrogen in nearly all soils for twenty-five and fifty crops respectively.

The reason why it is found impossible to crop year after year without the addition of manure on any given area—maintaining, at the same time, the weight and value of the crop—is that all the plant food present is not available. The highly complex nitrogen compounds must be transformed by bacteria into ammonia and nitrates, and the phosphoric acid and potash must be rendered soluble, hence the plant food in a soil can be classed as available and dormant. It has been shown by soil analysis that there is a considerable uniformity in the proportions of the phosphoric acid, nitrogen, and potash in soils, and it is rare to find any one of the regular constituents missing—namely, soda, lime, magnesia, iron, manganese, chlorine, silica, alumina, and sulphuric acid, in addition to the three mentioned above. The difference in crops is not due, as was once commonly supposed, to a difference in the soils, but it is determined mainly by climate, water supply, temperature, and physical conditions of the soil. The old belief that different crops depleted the soil of varying constituents is not correct, for we have just shown that the quantity of plant foods present in nearly all soils is considerably in excess of the requirements of any given crop.

We have already pointed out that the three principal plant foods are nitrogen, phosphoric acid, and potash, and, therefore, in considering the value of any manure, account only has to be taken of these three constituents. The remaining portion, however indispensable to the constitution of the manure, must be regarded as surplusage.

Again, account must also be taken of the condition of these principal ingredients, for unless available as plant food their value is small.

The fat, fibre, and carbohydrates in a food are useless as manure, for only being compounds of carbon, hydrogen, and oxygen, they are, when digested, resolved into carbon dioxide and water, and even the indigestible portions when they reach the soil cannot feed the plant. The nitrogen, phosphoric acid, and potash in a food are the only valuable constituents, and as foods vary considerably in the proportion in which these three constituents are present, and also as to their digestibility, it stands to reason that the manurial value must vary greatly with the different foods employed.

Unfortunately for the poultry-keeper no definite particulars are available as to the digestibility of foods when taken into the digestive system of birds, and, therefore, we must rely to a very great extent upon the figures that have been arrived at after a large number of animal experiments have been conducted. Again, the actual proportion of the nitrogen compounds retained in the body is comparatively small—this depends on the age of the animal to a very great extent. For instance, young growing stock or a cow in full milk retains more than an animal that remains stationary in weight, and, moreover, a beast in the later stages of fattening retains very little. We can but believe that the same is true of birds, and for our purpose we take the facts that are known in relation to larger stock to apply more or less equally to fowls. Until a complete series of experiments has been carried out in this direction it is only possible for us to base our conclusions upon these statistics. The experiments carried out at the late College Poultry Farm, Theale, and as published in the March, 1907, issue of the *Journal of the Board of Agriculture*, are instructive as far as they go, but even the authors realise that their work only forms one of the many tests that are necessary before the required particulars are obtained. We desire to point out the lines along which investigation should take place if we are ever to ascertain that information which will help us to a definite knowledge of the subject.

It is impossible to compare exactly poultry manure, as produced on an ordinary farm, or on a specialist farm, with either farm-yard manure or guano, for it differs considerably from both of these fertilisers. We know that various changes take place in the making of dung, and, therefore, it can be assumed that changes take place in stored poultry excreta, but there must be a difference, since, as a general rule, there is an absence of litter in the latter case. To a certain extent poultry manure can be compared with guano, more correctly, perhaps, with the latter deposits, but even in this case there is a difference in age, and, therefore, in the quantity of the various plant foods in available form.

The digestibility of the nitrogen compounds in a food has a great effect upon the value of the excreta. The nitrogenous substances in the faeces, since they have resisted the attack of the digestive processes, will be rendered available as plant food very slowly. The nitrogen, however, in the urea will change very rapidly into ammonia, so that it is an extremely active fertiliser. The same applies to the phosphoric acid and the potash, for whatever part of the food is digested is excreted as urea, and is, therefore, available for the plant; that portion in the faeces will only become useful after the lapse of a considerable period of time. It is known that the richer and more concentrated a food is, the greater is the proportion of its nitrogen that is digested. Some foods employed contain upwards of five per cent. of nitrogen, of which about four-fifths to nine-tenths is digested, whereas coarse fodder, such as clover hay chaff, may only contain between one or two per cent., of which only about one half is digested. As a general rule, however, the majority of the foods used for feeding poultry are more or less concentrated, and, therefore, there may not be so very much difference in the percentage of available plant food in the manure produced from various feeding stuffs as one would imagine at first sight.

It has yet to be ascertained what is the exact difference between fresh and stored poultry manure, for this is an important point when it is taken into consideration that the portable-house system is coming into use so much at the present time. One would imagine from the foregoing that stored manure would contain a higher percentage of available nitrogen, owing to the action of the bacteria present. On the other hand however, it may be that by keeping the excreta, even when mixed with earth, as is usually recommended, a certain proportion of the nitrogen is lost. The nitrogen thus lost falls upon the most valuable of the nitrogen compounds—

namely, those that are soluble in water and available for plant food. When dung is made under the most favourable conditions there is a loss amounting to about fifteen per cent., but on account of the poultry excreta being drier it would be imagined that the loss would be less than with ordinary farm-yard manure.

The guano to which reference has been made consists of the excrement of sea-birds which frequent the rainless islands off the West Coast of South America. This material accumulates year after year and only undergoes a slight process of decay and washing. The older deposits may contain less than three per cent. of nitrogen and perhaps sixty per cent. of phos-

they possess very different functions in its development. Nitrogen is concerned chiefly with the vegetative development and increases the tendency to form leaf and stem, hence an excess of this constituent may cause the leaf system to become excessive, and the plant may tend to continue growth rather than to produce flowers and fruit. Phosphoric acid hastens maturity and favours the reproductive side of the development. A liberal use of this form of manure tends to induce fruit trees to produce fruit rather than grow, and this effect is more noticeable on heavy soils and in wet seasons when conditions make for slow maturity. Potash is mainly concerned in the manufacture of



An excellent method of utilising fowl manure.

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phates, whereas the more recent deposits show as much as fifteen per cent. of nitrogen and only twenty per cent. of phosphates. It is stated that one great advantage of guano lies in the fact that the many different compounds of nitrogen differ at the rate at which they can be rendered available, and hence the plant is fed continuously and suffers from no excess of available nitrogen in the soil at any time.

In dealing with fertilizers it is necessary for the user to realise the different action of the three constituents—namely, nitrogen, phosphoric acid, and potash. All are essential to the plant, yet

carbohydrates in the plant. For this reason it is very useful for potatoes and mangolds, which contain a large quantity of starch and sugar respectively. This constituent also tends to keep plants growing, and is, therefore, specially useful on light soils and in dry seasons. From this it will be seen that poultry manure forms a valuable fertilizer, and that its collection and treatment should receive more attention on the part of poultry-keepers.

We append the following figures taken from the report before referred to. For fuller particulars readers should refer to the original article.

COMPOSITION OF POULTRY MANURE.

		Fresh sample. P.c.	Air- dried sample. P.c.
I. Manure from Birds at liberty.			
Moisture	...	59.5	9.96
Dry Matter	...	40.5	90.04
Containing Nitrogen	...	1.75	3.99
,, Phosphoric Acid (P ₂ O ₅)	...	1.00	2.27
,, Potash (K ₂ O)	...	.54	1.22
II. Manure from Birds in confinement.			
Moisture	...	68.3	9.5
Dry Matter	...	31.7	90.5
Containing Nitrogen	...	1.47	4.21
,, Phosphoric Acid (P ₂ O ₅)	...	.71	2.04
,, Potash (K ₂ O)	...	.49	1.4
III. Manure from Fattening Birds.			
Moisture	...	70.3	15.0
Dry Matter	...	29.7	85.0
Containing Nitrogen	...	2.28	6.52
,, Phosphoric Acid (P ₂ O ₅)	...	.97	2.77
,, Potash (K ₂ O)	...	.55	1.57

Value of Manures.—Taking the quantities of manurial constituents in the above samples, and estimating their value on the following basis—

Nitrogen	...	12s. per unit (i.e. 1 per cent. per ton)
Phosphoric Acid	...	3s. „
Potash	...	4s. „

we arrive at the relative values when in moist and air-dried conditions respectively :

ESTIMATED VALUES OF FRESH MANURE PER TON.

	Nitrogen.	Phosphoric Acid.	Potash.	Totals.
I. Fowl at liberty	21 0	3 0	2 2	26 2
II. Fowl in confinement	17 8	2 2	2 0	21 10
III. Fattening fowl	27 4	2 11	2 2	32 5

ESTIMATED VALUES OF AIR-DRIED MANURES PER TON.

	Nitrogen.	Phosphoric Acid.	Potash.	Totals.
I. Fowl at liberty	47 11	6 10	4 11	59 8
II. Fowl in confinement	50 6	6 1	5 7	62 2
III. Fattening fowl	78 3	8 4	6 3	92 10

From the quantity of excreta voided by the birds under the test it was estimated that if a farmer had a hundred hens and six males he would obtain from them in the course of twelve months, four tons of fresh manure, or a little over one and a half tons of air-dried manure, having a value of about £5.

EGG PRODUCTION FOR PROFIT.

J. C. NEWSHAM.

Hampshire Farm School, Basing.

THE following description of an English egg farm in Hampshire, and the account of the methods that have been adopted by the proprietor to make egg production in this country successful, will be of interest to all who keep poultry for profit. The circumstances under which the farm was established are as follows:—The proprietor was perhaps one of the most successful of the large egg producers on Vancouver Island; two years ago he returned to England, purchased ten acres of farmed-out land, and commenced to build up a plant suitable for egg production on a large scale. The farm is run purely for profit, and is at present stocked with 1,600 White Leghorns. As regards housing, four large laying houses have been erected, each accommodating four hundred birds, while a brooder house for 2,500 chickens, and various houses for cockerels and other stock are provided.

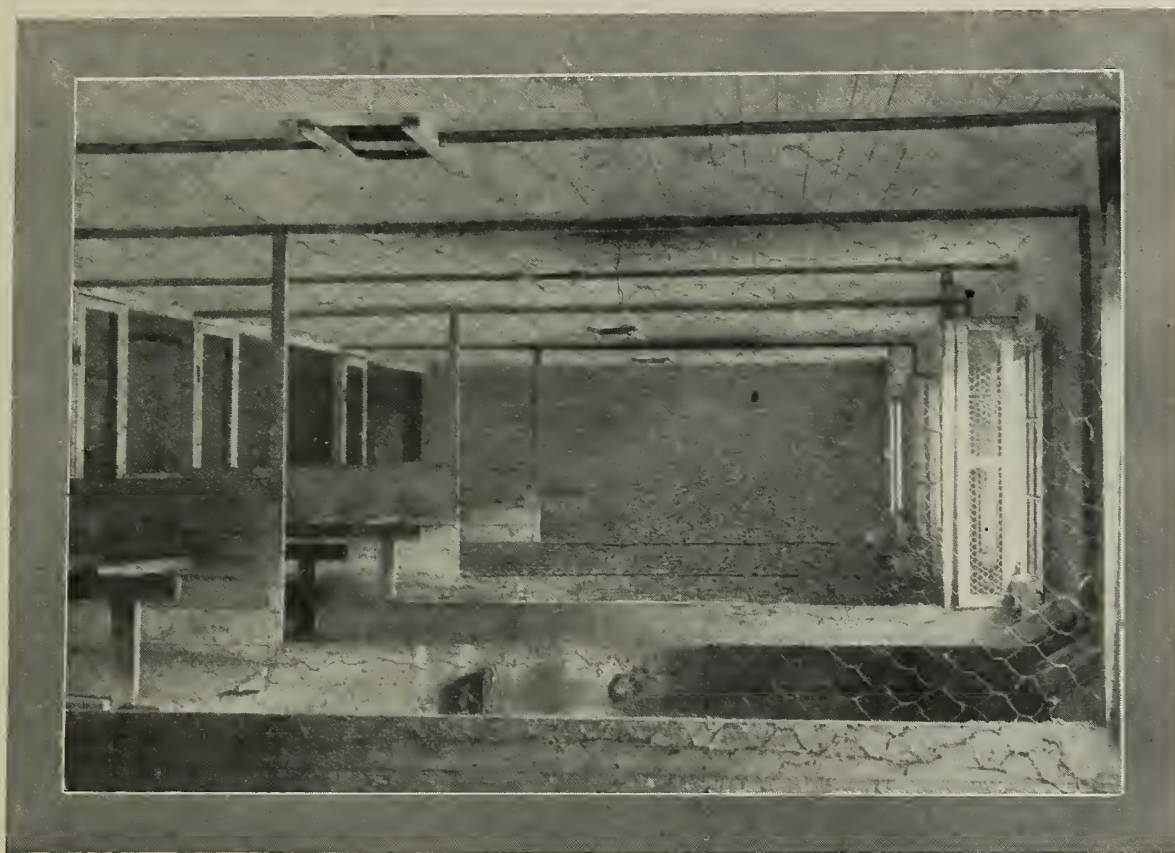
Hatching and Rearing.—Until recently half a dozen incubators were used on the farm, each capable of holding 360 eggs, but the proprietor has now installed an incubator of a new type, capable of carrying many thousands of eggs, and of effecting a saving in fuel and labour.

Eggs are set for hatching from April 7th to May 1st, so that the pullets may commence laying in October. On the average, six per cent. of the eggs prove infertile, while the number of fertile eggs hatched usually reaches 75 per cent. One half of the flock is reserved for breeding purposes, and for the remaining half pullets are substituted every year. In order to accomplish this, it has been necessary, up to the present, to incubate 4,000 eggs in two hatches. Eight hundred pullets are reared annually for renewing the stock on the farm. Some 20,000 eggs are sold for hatching each year, and the price obtained is 5s. for each sitting of 15 eggs, 35s. for a batch of 110, and £15 for 1,100. The extra number of eggs is given in order to cover inevitable breakages and infertile eggs. A sitting of eggs from a first-class laying pen of birds will, of course, be an expensive item. The proprietor of the farm in question states that he has paid as much as £5 for 100 such eggs.

Brooders or Foster Mothers.—The ordinary hot-water type of brooder is held in no great favour on this Hampshire egg farm. The ventilation is said to be faulty, and requires continual

adjustment to keep in proper order; there are numerous lamps which require attention; the cost of working the brooder is described as being excessive, and the initial cost is high, while a great deal of valuable time has to be devoted to the regulation of the temperature. On the farm in question the temperature in the brooder house is greater near the pipes than elsewhere, so that the chicks, if cold, go near them, and if too hot away from them. This house is very large, and provides plenty of air space. Anthracite coal is used as fuel, and in order to attend to the fire properly, two visits in twenty-four hours are required. The proprietor

divisions and gates into the passage. In each of the twenty separate pens in the brooder house 125 chicks are accommodated, the number being gradually reduced by, say, twenty-five per cent. of deaths, and by the removal of a certain number of cockerels as soon as the sex can be distinguished, thus reducing the number of birds in each department as they grow in size. The birds actually remain in the brooder house for from six weeks to two months, according to the weather conditions; but in the case of White Leghorns, practically all the cockerels can be detected at two months, and quite a large number from five to six weeks.



A large laying house on a Danish egg farm.

[Copyright.]

estimates the actual cost of fuel at $\frac{1}{2}$ d. per chick for two months.

The special type of brooder used on this farm has a capacity reckoned at 2,500 chicks. The brooder house is 110 feet long, 12 feet wide, and is divided into twenty pens, each 5 feet wide, and 8 feet long. There is a furnace pit in the centre, 10 feet by 8 feet, and a passage at the back, 4 feet wide, running the entire length of the building, with doors at each end, and one door at the back opposite the furnace, with removable windows in the doors. The floors are of boards, which are covered with sand and small litter to a depth of 3 inches. On the north side are six windows, and the south side is of glass. Wire netting is used for the

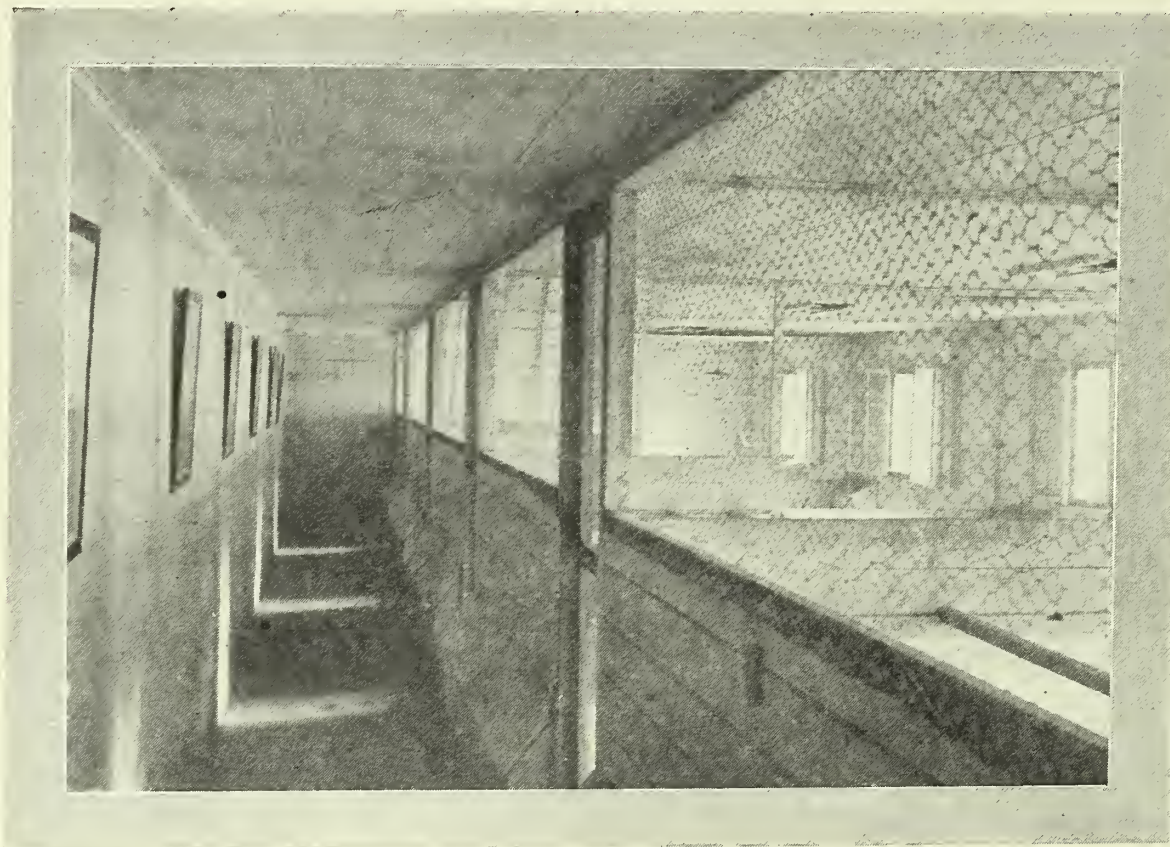
Housing Accommodation.—The farm itself is situated at an elevation of six hundred feet. The housing accommodation for the birds is a matter of difficulty, especially in the case of a commercial egg farm where large flocks have to be catered for. On the farm under consideration, the pullets are removed to small portable colony houses when the laying-houses are full of adult stock; and they remain there until they are about five months old. Each of the temporary colony houses is large enough to accommodate 50 birds. The floor is of loose boards, covered with earth and straw; the front is of wire, and there are three perches. These colony houses are 6 feet wide, 4 feet high in front, and 3 feet high at the back. They are built of timber, and

covered with a patent roofing felt, and are portable. In short, they may be described as miniature laying-houses.

The permanent quarters for the adult fowls are much larger, each house being built to accommodate four hundred birds; they are 9 feet wide, 180 feet in length, 7 feet high in front, 4 feet high at the back, and are divided into a number of partitions at every 10 feet by a board running 6 feet across the floor. The houses are also fitted with glass fronts, and there is a wire covering under the hood to allow free circulation of air. There are perches at the back, fixed over a dropping board 2 feet wide

ensures an adequate supply of fresh green food for the birds, and at the same time keeps the soil sweet and wholesome.

Feeding.—The thousand-headed kale that is grown as described in the preceding paragraph is supplemented by an extra half-acre or so of the same fodder crop, which is grown every year, and, if necessary, a few tons of roots, such as turnips, swedes, or mangolds, are purchased and scattered whole—not cut up—on the ground so that the birds can peck all the flesh out of them. The latter course is, however, only adopted when the green food is short in the yards. Fish or meat in a suitable form is



Another view of the same laying house (see previous page).

[Copyright.]

and raised to a similar distance above the ground; the boards are covered with fresh earth every week.

In the front are placed removable nest boxes, and over these and under the hood are situated broody coops. At the north and south sides of the house are doors for hens, and the attendants can enter by means of doors placed at the two ends of the house, and also at intervals of 30 or 40 feet along one side. Each house stands on one acre of ground, and the birds run on to the south half-acre in winter, and on to the north half-acre in summer; and as soon as the plot of ground is vacated by the birds, it is immediately ploughed and sown with wheat and thousand-headed kale. This system of management

always provided, to the extent of at least 10 per cent. by weight, in the dry mash, as a substitute for grubs, worms, and similar natural food. Ground raw bones are also sometimes fed, but not regularly, for the supply of these is intermittent, and an engine would be required to grind them at home, which would involve a further outlay of capital.

The following statement indicates the general system of feeding as practised on this egg farm, (a) from the time of hatching until egg-laying commences, and (b) during egg production:—

(a) Chick food is given for one week, then chick food and dry mash. At three weeks a little wheat is introduced into the ration, and at five weeks all the birds are

fed on wheat. The chicks have food before them continuously.

(b) During the period of egg production the birds are fed on a ration consisting of two-thirds of wheat and one-third of cracked maize. This is fed in 6 inches of litter in the morning, and dry mash food is always at hand for the birds. The latter are also provided with as much green food as they will eat, especially in the winter, as well as grit, shell, and charcoal.

The cost of feeding during the period from the time of hatching until egg-laying commences is roughly estimated at 2s. per bird; in the second case the cost of feeding during egg-production is a variable quantity to a certain extent, according to market fluctuations, but it is reckoned that from 6s. 3d. to 6s. 6d. per bird per annum is a fairly representative cost.

A good supply of clean, pure water is available, and in the present instance the proprietor is fortunate in having a continuous supply from the borough main, and if that fails he has at least 1,000 gallons always in reserve for his birds. Pipes are laid on to each house from the main, and short lengths of piping are also fixed under each house, with taps easily available at both sides. The taps are underground, and there is a length of piping screwed on and projecting above ground; the latter can be easily unscrewed, and, as the water runs out of the tap, which is below ground, it does not freeze. A little permanganate of potash is put into every drinking-dish that is placed before the birds.

Precautions Against Disease.—One of the outstanding features to be noticed on this farm is the entire absence of disease in the poultry pens. The birds are all bred from perfectly healthy stock, and the houses and yards are kept in a scrupulously clean and thoroughly sanitary condition. No outside stock are purchased, and all weakly and puny birds are killed at once, so that there shall not be the slightest risk of disease. In order to aid in the maintenance of cleanliness and sanitation, the perches are creosoted monthly, the laying-houses are disinfected at similar intervals with a spray pump, and the floors and dropping-boards are tarred annually.

Labour and Marketing.—The following particulars furnished by the proprietor are connected with the economic side of commercial egg-production, and the cost of labour and marketing of the produce. The amount of attention required by a flock of 400 birds is reckoned as follows:—

	Hours per week.	Hours per year.
Watering twice daily (30 minutes)	3½	182
Grain fed once daily (30 minutes)	3½	182
Dry feed twice weekly ...	4	208
Cleaning house once weekly ...	1	52
Spraying once monthly ...	—	12
Creosoting perches ...	—	12
Annual clean ...	—	72
Providing grit and shell ...	—	12
Collecting eggs (15 minutes daily)	1¾	100

Total number of hours for one man per year 832

As only one breed is kept on this farm, and the system of dry mash feeding is practised, two men are able to look after four houses and 1,600 hens, water and feed the latter, collect, pack and despatch the eggs, attend to a pony, do all the gardening, and clean a motor.

As regards the cost of marketing the eggs, the railway charges from the nearest station to London, a journey of 47 miles, amount to 1s. 8d. per 30 dozen eggs, or a little less if 120 dozen eggs are sent to one address. Particular care is taken to sell only infertile eggs, and not a single egg is purchased from another farm. The old hens are disposed of as follows: the best are kept for breeding, either for the home farm or for sale for the same purpose, and the others are sent to London and sold at Smithfield.

The Market for Eggs.—The business is entirely a wholesale one, and the proprietor has been very successful in establishing a first-class connection with big London dealers. Further, he is able to secure good wholesale prices for them, as the following record shows:—

March, April, and May ...	1s.	per dozen.
June, July, August, and September ...	1s. 3d.	„
October, November, December, ...	„	„
January ...	1s. 9d.	„
February ...	1s. 5d.	„

Complete records are kept of the number of eggs produced at all times of the year, and the totals for the best winter months were as follows:—

January ...	7,616 eggs.
February ...	7,310 „
March ...	8,606 „
Total ...	23,532

The figures given above represent the total number of eggs produced by a flock of 402 pullets during a period of 90 days. Two hundred of the birds had been hatched in June, and some as late as June 26th. A poultry farmer expects about a gross of eggs per bird, but often the average of the ordinary farm flock falls as low as 70. The records kept on the farm under discussion showed that flocks of 900 birds had been kept, averaging 176, 168, and 162 eggs per bird. On the average each egg weighs 2 ounces or a little over.

[*Journal of the Board of Agriculture.*]

THE CASH VALUE OF SHOW POULTRY.

BY J. STEPHEN HICKS.

IN the composite crowd of individuals who may be seen thronging the aisles at any of the big poultry exhibitions, those are not lacking who, pausing before the pen of some winner, and finding that the exhibitor has maybe catalogued the bird at £100, remark with a contemptuous snort, that the true value of the prize winner is about three shillings. Now this is not a very thoughtful remark, as we shall see presently, but to a considerable extent it voices the opinion of the man in the street concerning fancy poultry.

It is true enough that the actual price appearing against an entry in a show catalogue is often considerably higher than the figure at which the exhibitor would be willing to cash the bird, and very often a prohibitive price is fixed, simply because it is not desirable for the bird to be "claimed" at the moment; besides there is always the off chance, if an exceedingly inflated price—say £1000—be put upon a bird, however inferior, that some enterprising journalist will note the amount, and photograph the specimen for appearance next day in the half-penny press thus giving the owner a very cheap advertisement.

It happens very occasionally that a novice, anxious to herald his first appearance in the fancy with a flourish, will claim one of these highly-priced exhibits at catalogue price, and during the past decade such figures as £50 (on several occasions), £75, £100, and even, one £165, have been realised for single specimens—always male birds by the way—at the auction sales held during the principal shows. Doubtless most of these sales have been genuine, though there have also been one or two dubious £100 claims, the owners, for the sake of the advertisement, coming to some arrangement with an accomplice who apparently purchases the bird, the only money that really changes hands being the auctioneer's commission.

But we are wandering from the question of the cash value of winning poultry; as a matter of fact these champions—to deal first with the really tip-top exhibits, of which only about a dozen of both sexes appear annually in each variety—have a twofold value, first, the ability to win money prizes for their owners, and the second the more indefinite value attaching to anything rare, super-excellent or beautiful, from a collector's point of view. The former value admittedly depends entirely upon the continuance of poultry shows, but even the bitterest opponent of the fancy has not ventured to

prophecy their complete cessation. At the present moment there is something like an average of two shows on every week-day throughout the year, and indications point to an increase rather than a diminution in this number. The breeder or owner of one of the champion birds will be able to show successfully from eight to fifteen times during the season, according to the breed and his own ability, and it is not at all unlikely that the nett profit in prize money only will amount to £3 or £4, in addition to which a bird of this class would win several special or extra prizes in cash or kind and probably a cup or two. Apart from prizes at the Palace and Dairy Shows, etc., there is the advertisement gained by a successful exhibit; which is going to bring more business in sales later on than half a page space in the best poultry journal. Finally there is the bird's breeding value to be considered; it may or may not be the case that, properly mated, he or she will be sufficiently prepotent to throw stock as good as, or better than, himself or herself, but in any case, it may reasonably be anticipated that a certain proportion of representative specimens will ensue from a careful mating of champions. Again, barring accidents, there is always another show season or two to look forward to in a young birds existence, when, with ordinary luck and management, the success of the first year may be repeated.

It is almost impossible to deduce to a pound or two from the above the total cash value of a champion young bird in some popular variety, but it can easily be seen why claims and sales at prices varying from £10 to £25 are so frequently made every year: making due allowance for sex and popularity one may safely say that the cash values of show poultry of the first class lie within these limits.

For the rest, fancy poultry may be divided into two main classes, one comprising the type of bird which wins at the better class provincial events where first prize money varies between 15s. and £1, and the other embracing the rank and file of exhibits, not of sufficient merit to capture prize money save at out of the way, local, or 'member's' shows. Of course, the value of these second-class specimens is not nearly so great, for one thing there is always the risk of their running up against one of the champions at the provincial shows, and again, the vagaries of the all-round judge are so proverbial, that quite a good bird is liable to get left out of the prize list. It is very doubtful whether expenses of carriage, etc., are more than covered by the prize money gained by second-rate birds and the advertisement accruing from a win at a show such as, say, Bristol or Cambridge, is generally little more than local.

However, every little helps to assist sales (and here we are considering first prizes, as seconds are of little value), and of course the breeding value may be quite high. We shall not be far wrong in stating that a fairly steady demand exists for single specimens of the lesser prize winners at from £5 to £7.

There remains the third class exhibit, which is the kind of bird owned by the town fancier with limited accommodation, and it is always doubtful whether such birds will get into the prize list at all; even if they do, prize money is scanty and advertisement practically nil. Keen rivalry, on the other hand, generally exists among the members of local fancier's associations, and a back-yarder will frequently spend his hard-earned savings to the extent of two or three guineas, in the purchase of a bird fit to beat his neighbour's. At the end of the limited career of such an exhibit, if his owner does not wish to retain him for breeding purposes, there is always the guinea selling class at some bigger show that can be patronized, where, if sold and a winner, he can be expected to bring in 25s. or thereabouts. The cash value of show birds of the third grade, therefore, ranges between 15s. and £3 3s.

POULTRY DISEASES.

SIMPLE DRUGS FOR TREATMENT.

Dr. Carey, of the Alabama Station, U.S.A., has prepared a useful list of drugs, etc., for poultry, as follows:—

For Intestinal Worm.

- (1) Isolate infested birds and destroy or disinfect their droppings while being treated.
- (2) Put one or two drachms of copper sulphate in each gallon of drinking water for one week; or
- (3) Powdered pomegranate root bark (for tapeworms), followed by two or three tablespoonfuls of castor oil; or
- (4) Oil of turpentine, one or two tablespoonfuls, followed in four to six hours with castor oil.
- (5) Powdered santonin in five to eight grain doses is especially good for round worms.
- (6) Chopped-up pumpkin-seed for tapeworms.

For Worms in Air Passages.

- (1) Turpentine introduced by stripped feather into the windpipe.
- (2) Steaming with creolin and turpentine in the hot water.
- (3) Feeding garlic in the food.

For Diarrhœa.

- (1) Subnitrate of bismuth, one to four grains, two to three times per day; or

- (2) Pulverised cinchona bark, one to two grains three times per day, and

- (3) Quinine one eighth to one-half grain twice per day.

- (4) Dry feed or cooked and slightly moist feed.

For Constipation.

- (1) Epsom salts, twenty to thirty grains in one tablespoonful of water; or

- (2) Calomel, one to two grains, and

- (3) Soft feed.

For Lice.

- (1) Lard or vaseline over head, under wings, and round anus.

- (2) Dipping in 15 per cent. kerosene oil emulsion; or

- (3) Dipping in 2 to 5 per cent. creolin solution.

- (4) Pyrethrum powder dusted among the feathers.

- (5) Clean nests, yards, and houses.

For Intestinal Disinfectant.

- (1) One-half to two drachms of copper sulphate in one gallon of drinking water; or

- (2) One-half to two drachms of iron sulphate in one gallon of drinking water; or

- (3) Salol, one-half to one grain, once or twice daily.

- (4) Naphthol, one-half to one grain once per day after eating.

- (5) Resorein, one-fourth to one-half grain per day, after eating.

- (6) Hyposulphate of soda, four to ten grains in one tablespoonful of water.

For Chicken Mites.

- (1) Lard or vaseline on legs, feet, and head applied once or twice per week. Wash off scales.

- (2) Kerosene emulsion sprayed on walls, roosts, floors, and nests once per week, for what is commonly called chicken mites or chicken ticks.

- (3) Two to 5 per cent. creolin solution sprayed on same places as (2).

- (4) Formalin, one part to 200 parts of water, sprayed as (2).

- (5) Corrosive sublimate (very poisonous), one part to 1,000 parts of water, sprayed as (2).

- (6) Boiling hot water freely applied by pouring over walls, roosts, nests, and floor.

- (7) Clean chicken house every day until mites are gone.

New Zealand Poultry Standard.

Each country usually has, perhaps must have, its own standard of excellence. The New Zealand Poultry Club is now busily engaged preparing one.

POULTRY COOKERY.

SAVOURY EGGS.

Now that eggs are becoming more plentiful and consequently cheaper, the housewife should take advantage of the opportunity and display her skill in this light and pleasant branch of the culinary art, and as they can be cooked and served in such a large variety of ways they form an exceedingly useful and dainty article of food, suitable for any meal in the day, the plain simple methods being appropriate for a breakfast dish, the more elaborate ones for serving at luncheon, high tea, or dinner. As a few examples the following recipes, which are somewhat out of the common, may be helpful to our readers.

ANCHOVY EGGS: Cut some slices of bread from a stale loaf, about an inch thick, and stamp them out with an oval cutter three inches long, then with a smaller cutter about two inches long remove a piece from the centre of each, leaving a layer of the bread, quite half an inch thick, uncut at the bottom. When ready, fry these croustades in boiling clarified fat until coloured a rich golden brown, when they must be carefully drained and kept hot. Boil an equal number of perfectly fresh eggs until quite set, then carefully remove the shells and place an egg in each croustade, add a coating of thick creamy anchovy sauce, sprinkle lightly with finely-chopped hot parsley, and serve arranged in neat order on a dish paper, garnished with pleasantly-seasoned crisp watercress.

EGGS A LA MAITRE D'HÔTEL: Boil six or eight eggs for ten minutes, then remove the shells and cut the eggs in quarters lengthwise; season these pleasantly with salt, pepper and lemon juice and cover each piece entirely with a layer of good veal forcemeat, being careful to preserve it in its proper shape; press the coating gently until it is quite firm and smooth, then egg and breadcrumb in the usual way and fry in boiling clarified fat. When sufficiently cooked and daintily coloured, drain thoroughly, pile up tastefully on a hot dish paper, garnish with sprigs of parsley and slices of fresh lemon, and serve very hot, accompanied by some well-made maitre d'hôtel sauce in a sauce-boat.

EGG SOUFFLE: Break the yolks of four or five fresh eggs into a basin and add to them two tablespoonfuls of thick cream, one ounce of finely grated cheese, two ounces of fresh butter which has been slightly softened, but not on any account oiled, and a light seasoning of salt and pepper, then mix well together, and last of all stir in the egg whites which have been whisked to a firm froth. Have ready a well buttered fire proof china dish and pour the prepared eggs into it, leaving plenty of room for the soufflé to rise during the process of cooking. Shake a small quantity of grated cheese over the surface and bake in a well-heated but moderate oven for fifteen or twenty minutes. Send to table as quickly as possible, accompanied by very hot plates.

FRIED EGGS WITH TOMATO SAUCE: Melt a little fresh butter in an omelet pan and fry in it, very carefully, as many eggs as are required, being particular to keep them as neat a shape as possible. When just nicely set, place each egg on a crisp hot croûtons of corresponding size, and arrange neatly on a hot dish: season with a light sprinkling of salt and pepper and pour over sufficient well made tomato sauce to entirely cover, then ornament the surface with tiny rings or patches of hot finely minced parsley, and serve at once.

EGG CUTLETS: Prepare three quarters of a pint of good bechamel sauce, and while still hot stir into it two well-beaten fresh eggs and a further seasoning of salt and pepper: continue stirring over a moderate fire until the sauce becomes thick without reaching boiling point, then add half a dozen hard boiled eggs cut in tiny dice, two or three ounces of lean cooked ham or prime bacon very finely chopped, and a tablespoonful of minced parsley, after which mix the various ingredients thoroughly and turn the preparation out on to a flat dish. When cool, divide it into small portions about the size of an ordinary hen's egg and form these into neat little cutlet shapes; egg and bread crumb in the usual manner, and when a smooth firm coating has been obtained, fry the cutlets in plenty of boiling clarified fat until coloured a dainty golden brown. When ready, place each cutlet on its broad end on a crisply-fried croûton and arrange neatly round a high mound of some skilfully-cooked vegetable; garnish with fried parsley and serve very hot, either at luncheon or dinner. Or, if preferred, the vegetable mound can be dispensed with, when the cutlets form a most delightful breakfast dish—a very convenient one, too, as they can be prepared the previous night, all except the frying which only requires from five, to seven or eight minutes, according to the thickness.

EGGS AND MUSHROOMS: Carefully prepare a pint of freshly-gathered button mushrooms, and as they are done, drop them into a basin of cold water to which has been added a small quantity of lemon juice. When ready, drain well, and stew the mushrooms in a little fresh butter until they are tender, then spread them out on a suitable dish and cover the surface with a layer of carefully-broken perfectly-fresh eggs; season lightly with salt and pepper, sprinkle some fine brown raspings on the top, and bake in a well-heated oven until the eggs are quite set. Serve neatly, and as quickly as possible. If preferred, or more convenient, tomatoes, cucumber, celery, &c., can be used instead of mushrooms, the vegetable being properly prepared beforehand.

Consumption of Eggs in New York.

An American exchange states that New York city, inclusive we suppose of the district, consumes 100,000 cases of eggs per week, that is, thirty-six million eggs, or 2,500 tons.

POULTRY KEEPING IN YORKSHIRE.

To the Editor of the "ILLUSTRATED POULTRY RECORD."

Sir,—The splendid audiences which assemble weekly at the series of lectures on poultry keeping, given by Mr. Parton, at Batley Technical School, not only testify to this gentleman's profound knowledge of his subject, but most emphatically demonstrate the great interest taken in this hobby. Week by week the attendance has increased, and on Wednesday evening last, quite 250 enthusiasts of all ages listened with rapt attention for nearly one and a-half hours. Such enthusiasm should produce far-reaching results, not the least of which might be the formation of a "Poultry Association," which might organise monthly or bi-monthly lectures, exhibitions of eggs, dressed poultry, or even promote a prize scheme for best-kept poultry houses and pens, containing, say, under twelve birds, or over twelve.

Their efforts might still further be extended by hunting out waste spots, the property of the Corporation or private individuals, that might be set apart for poultry runs.

Last winter we had lectures in horticulture, which were but moderately attended, but little surprise can be expressed thereat, for Batley, compared with other Yorkshire towns, seems to be singularly destitute of allotment gardens. Where these allotments can be secured, it is a delightful sight to note with what zeal, care and taste they are managed.

Should these remarks catch the eye of any who have attended these lectures, it is to be hoped they will do what they can to encourage the "toilers" to spend their leisure time with their gardens or poultry, if accommodation for the same can be secured.—Yours, etc.,

E. H. CROW,

Staincliffe.

MOISTURE IN INCUBATION.

To the Editor of the ILLUSTRATED POULTRY RECORD.

DEAR SIR,

I shall be obliged if you will allow me the space to reply to the two queries expressed by Mr. Carlton Hill in his references to the "Incubator Moisture Gauge" in your February issue.

The porosity of the shell of an egg is in no way affected by its colour, the average shell of, say, the White Leghorn egg will lose moisture no quicker than the chocolate brown egg of the Croad Langshan. Nor does the question of breed affect the evaporation in the slightest, chicks of the heaviest and the lightest breeds start life at exactly the same weight when from eggs of the same size.

The "I.M.G." is adjusted for use with new laid eggs, if the eggs for incubation must be kept then the evaporation from them should be checked by careful storage. See Herr F. Sweers' remarks on this point in a previous issue. If a stored egg has already lost $2\frac{1}{2}\%$ of its original weight before

incubation is commenced then its chances of hatching are lessened unless the further evaporation can be reduced to four-fifths of the normal loss. It must be understood that the result is the same whether the egg is hatched by a hen or by an incubator. It would seem obvious that if one fifth of the shell is rendered impenetrable to moisture by a coating of hard shellac varnish (see Wrights Book of Poultry on this point), then the stored egg may be incubated with new laid eggs with every chance of success. If all the batch to be incubated have been stored then the regulation of the incubator should be such that the "I.M.G." tests show only four days loss in five, or twelve in fifteen, this will then make matters exactly right.

Yours faithfully,

ARTHUR H. PIEJUS.

To the Editor of the ILLUSTRATED POULTRY RECORD.
DEAR SIR,

I have read the article in February issue on moisture in reference to Incubation, by Carlton Hill, which is very ably contended. He probably has not heard of our Egg Tester which does the work of the I.M.G. in a far more simple manner and is considerably less expensive. The inventor has given the instrument all kinds of tests and sends a chart with each which took him 17 years to work up. By testing the eggs at various stages (as you would do with the I.M.G.), you easily can ascertain the evaporation which takes place, which, if my Asbestic Hen Incubator is used, can be controlled by means of a top slide which can be closed or opened at will. Mr. Piejus ridicules Prof. Sweers when he says that there is no ventilation in an incubator if the dampness in the external air exceeds that in the egg chamber, evidently Sweers knows more about the principles of ventilation than Piejus. Unless a separate exit from the egg-chamber to "free air" beyond that "external damp air" no ventilation does take place. Without wasting any more of your space I will conclude by quoting his remarks, "It would appear that German incubator management in general (because he thinks so), favours excessive moisture in early stages, relying on vastly increased ventilation (an exaggerated view of Sweer's suggestion), at the end, to correct matters, a curious reversal of American practise." Why does he say this, as there is no special practice in America in reference to incubation, their only difference is that they work their machines at a degree less than us, which is a more natural thing to do. Several American well-known breeders and incubator makers that I know of give the moisture for the first 10 or 12 days. Piejus should not quote American methods when he apparently knows so little about them. Prof. Sweers has certainly given us some very good ideas to go on, but where are Piejus' new suggestions? one thing is certain, that if the stamina of the stock is weak all the ventilation and moisture in the world will not make an egg hatch.

R. TOOPE.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING FEBRUARY 14th, 1914.

ENGLISH POULTRY—LONDON MARKETS.

DESCRIPTION.	1st Week.		2nd Week.		3rd Week.		4th Week.	
	Each.		Each.		Each.		Each.	
Surrey Chickens ...	3/3	to 4/6	3/3	to 4/6	3/3	to 4/6	3/3	to 4/0
Sussex	3/3	" 4/6	3/3	" 4/6	3/3	" 4/0	3/3	" 4/0
Boston	2/3	" 3/9	2/3	" 3/9	2/3	" 3/9	2/3	" 3/6
Essex	2/3	" 3/9	2/3	" 3/9	2/3	" 3/9	2/3	" 3/9
Capons	5/0	" 6/0	5/0	" 6/0	5/0	" 6/0	5/0	" 6/0
Irish Chickens	2/0	" 3/3	2/0	" 3/3	2/0	" 3/3	2/0	" 3/0
Live Hens.....	1/9	" 3/0	1/9	" 2/9	1/9	" 2/9	1/9	" 2/9
Aylesbury Ducklings	3/0	" 5/0	3/0	" 5/0	3/0	" 5/0	3/0	" 5/0
Geese..... per lb.	9		9		9		9	
Turkeys, English	1/0	" 1/0	1/0	" 1/0	1/0	" 1/0	1/0	" 1/0
" Irish	1/0	" 1/0	1/0	" 1/0	1/0	" 1/0	1/0	" 1/1

ENGLISH GAME—LONDON MARKETS.

DESCRIPTION.	Each.		Each.		Each.		Each.	
	Each.		Each.		Each.		Each.	
Grouse	2/0	" 2/6	2/0	" 2/6	2/0	" 2/6	2/0	" 2/6
Partridges	2/6	" 3/0	2/6	" 3/0	2/6	" 3/0	2/6	" 3/0
Pheasants	1/6	" 1/9	1/3	" 1/9	1/6	" 1/9	1/6	" 1/9
Black Game	2/3	" 2/9	2/3	" 2/9	1/9	" 2/0	1/9	" 2/3
Hares.....	—	—	—	—	1/0	" 2/0	1/0	" 2/0
Rabbits, Tame.....	8	" 1/0	8	" 1/0	6	" 10	6	" 10
" Wild	—	—	—	—	—	—	—	—
Pigeons, Tame.....	1/6	" 1/9	1/6	" 1/9	1/6	" 1/9	1/6	" 2/0
" Wild	1/6	" 1/9	1/0	" 1/9	1/6	" 2/0	1/6	" 2/0
Wild Duck	1/6	" 1/0	1/6	" 1/0	1/6	" 1/0	1/6	" 1/3
Woodcock.....	6	" 1/0	6	" 1/0	6	" 1/0	6	" 1/3
Snipe	6	" 1/0	6	" 1/0	6	" 1/0	6	" 1/3
Plover	6	" 1/0	6	" 1/0	6	" 1/0	6	" 1/0

ENGLISH EGGS (Guaranteed New-Laid).

MARKETS.	Per 120.		Per 120.		Per 120.		Per 120.	
	Per 120.		Per 120.		Per 120.		Per 120.	
LONDON	15/-	17/-	15/-	17/-	15/-	17/-	15/-	16/-
Provinces.	Eggs per dozen.		Eggs per dozen.		Eggs per dozen.		Eggs per dozen.	
CARLISLE	1/6		1/6		1/6		1/6	
NEWPORT	2/0		1/10		1/8		1/7	

FOREIGN POULTRY—LONDON MARKETS.

COUNTRIES OF ORIGIN.	PRICES REALIZED DURING THE MONTH.			
	CHICKENS. Each.	DUCKS. Each.	DUCKINGS. Each.	TURKEYS. Per lb.
Russia	—	—	—	—
Belgium	—	—	—	—
France.....	—	—	—	—
United States of America..	—	—	—	—
Austria	—	—	—	—
Canada	—	—	—	—
Australia.....	—	—	—	—

FOREIGN GAME. LONDON MARKETS.

Price Each During Month.

Capercailzie	—
Black Game	1/- to 1/2
Partridges	—
Quail	—
Bordeaux Pigeons	1/10 to 1/4
Hares	—
Rabbits	—
Snipe	—

IMPORTS OF DEAD POULTRY & GAME. MONTH ENDING JANUARY 31ST, 1914.

COUNTRIES OF ORIGIN.	DECLARED VALUES.	
	Poultry.	Game.
Russia	£129,726	£9,804
France	£8,932	£29
Austria-Hungary	£15,125	£180
United States of America	£714	—
Other Countries.....	£9,050	£5,748
Totals.....	£163,547	£15,761

IRISH EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
Irish Eggs	14/0 to 16/6	14/0 to 16/6	14/0 to 16/6	14/0 to 16/6

FOREIGN EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
French ...	14/6 to 17/0	14/6 to 17/0	14/6 to 17/0	14/0 to 17/0
Danish ...	15/0 " 17/6	15/0 " 17/6	15/0 " 17/6	15/0 " 17/0
Italian ...	14/0 " 16/6	14/0 " 16/6	14/0 " 16/6	14/0 " 16/6
Austrian ...	10/0 " 12/0	10/0 " 12/0	10/0 " 12/0	10/0 " 12/0
Russian...	9/9 " 11/0	10/0 " 11/0	10/0 " 11/0	9/9 " 11/0

IMPORTS OF EGGS. MONTH ENDING DEC. 31, 1913.

COUNTRIES OF ORIGIN.	Quantities in Gt. Hund.	Declared Values.
Russia.....	363,475	£177,685
Denmark	238,542	£159,773
Germany	88,862	£41,928
Netherlands ...	64,719	£36,725
France	15,168	£11,026
Italy.....	66,528	£41,359
Aust.-Hungary	91,856	£45,023
Other countries	361,027	£138,647
Totals	1,290,420	£652,166



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If you are interested in the history and achievements of the TAMLIN INCUBATOR—what it has done in every portion of the Globe—write for our beautifully illustrated catalogue of 144 pages, and with its 250 illustrations of every conceivable Appliance for Poultry Keepers and Breeders; it's sent you free and post free on application.

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BRAZIL, Edw. E. Mawson, Rio Grande do Sul.
RUSSIA, Georgian Agricultural Society, Tiflis, Caucasus.

Notice of Removal.

Mr. EDWARD BROWN, F.L.S. (Hon. Sec. of the late National Poultry Organisation Society, &c., &c.), requests that on and after Tuesday, February 10th, 1914, all letters, communications, papers, &c., be addressed to 39, Queen Anne's Chambers, Broadway, Westminster, S.W.

Instruction in Poultry Keeping.

To the Editor of "THE ILLUSTRATED POULTRY RECORD."

SIR.—The article by "Observer" under the above title in your January issue must have awakened a response in the hearts of many who have suffered by the parsimony of County Education Committees, and by their absolute want of fairness. Certainly it does in my own. The time for plain speaking is long overdue. My own firm conviction is that those responsible for County administration have so little knowledge of or so much antagonism to poultry-keeping that they have, in many cases, deliberately set themselves to repress all efforts, as far as they are able, to retard development of the poultry industry. In no other way is it possible to understand the policy adopted, and not least in the low idea they have of the value of poultry teaching and the remuneration for the services of instructors.

To some extent the last-named are to blame for accepting fees which are contemptible. I can understand in many cases at first a lower salary being accepted in the expectation that it was only a beginning, and that as the work and experience grew advances would be made. That is customary in almost every line of life, and is often justifiable.

Where the trouble arises is that such advances are not made. Nothing so much atrophies enthusiasm and effort as the feeling that there is nothing beyond, and the limit has been reached. I know cases where instructors have been denied for years any increase of salary, even where that was inadequate at the outset. The result has been that many of those men have either given up in disgust for more remunerative work, or added to their incomes by selling stock or accepting commissions on orders obtained by their influence and recommendations. In no other branch would such a practice be permitted, but County Education Committees in their desire for cheapness have winked at what lowered instructors in the eyes of their audiences. Unless and until these refuse to work for salaries which do not afford a living wage, such will continue.

A further trouble arises from what may be termed "part-timers." Some time ago I heard of a case in which a salary of £2 per week was offered, but only with a guarantee of about twenty weeks engagement out of the twelve months. What the man was to do the rest of the year the Committee did not care. Had that body paid £100 per annum, plus expenses, and borne the lost time and vacations it would have been little enough in all conscience. As it was they expected the pick of weeks, not even the Christmas two weeks break in the period being paid for. Only those could possibly accept such an offer who had other means of income, consequently the whole standard of poultry teaching has been lowered and the "Commercial Traveller Instructor" given a place which ought never to have been his. Regularity of employment, together with an adequate income, is what we have a right to demand.

I ask, therefore, why do not Poultry Instructors combine in self-defence? Another point is that more than one teacher has been killed by having to undertake a strain beyond the power of any one man.

Yours faithfully,

EX-INSTRUCTOR.

The Fallacy of selling Eggs by Weight.

To the Editor of the "ILLUSTRATED POULTRY RECORD."

Dear Sir,—With the object of encouraging the production and producer of large eggs it is constantly advocated in all poultry papers that eggs should be sold by weight. If ever this comes to pass it will be found, I think, that it is the producer of smallish (not actually small) eggs, those weighing about 1½-ozs. each who will score. Eggs of this size are generally accepted without complaint for full-sized eggs. We all like something which costs us nothing, and the egg consumer is included in this category. He prefers a large egg to a small egg as long as his preference costs him nothing, but it would be quite another story if he had to pay for it. The economical house-wife who was offered by her dairyman eight eggs weighing 1½-oz. each at the same price as six 2½-oz. and one 2¼-ozs. egg would at once discover that an egg is but an egg and that the eight smaller eggs would go further at the family breakfast table than the seven larger ones. Then again, at all restaurants and tea shops the eggs supplied are always of a good size whatever doubts there may be as to their freshness, but if these establishments could buy their eggs by weight, they would purchase the smallest eggs they could palm off on their customers without too much complaint. To sum up, as things are, large eggs are preferred, selling by weight it would be the smaller, which would bring a better price per pound. Bearing on this is a statement frequently made that size of egg is gained at the expense of prolificacy. I don't agree with this. No doubt if one endeavoured to raise a strain laying large eggs of a breed which naturally laid small ones, this would be so. In a breed such as the Rhode Island Red, in which the average egg is large, size and prolificacy bear no relation to one another. It is all a question of the individual. Some hens will lay large numbers and all of them a good size. There are bad layers and of small eggs. As far as my personal experience goes all the two hundred egg pullets which have been through my hands laid eggs which averaged 20zs. upwards.

Yours faithfully,

Chertsey.

J. H. CROWLEY.

KEEPS EGG PRESERVATIVE.

NEW DIRECTIONS.

For each gallon of water add two ounces of clean unslaked lime, mix well and allow it to stand 24 hours, then add four ounces of the Preservative, stir through and the following day give it another brisk stirring when the solution is ready for the eggs, which may be gently floated in (allow three or four inches of the fluid to cover the eggs so that they are not exposed to the air by evaporation of the water).

The vessels (white wood, glazed earthenware or slate tanks) containing the eggs should then be stored in a cool well ventilated cellar, lightly covered with butter muslin so as to give plenty of air and keep out the dust, and allowed to remain stationary until the eggs are required.

All conditions being favourable, eggs so preserved will keep quite fresh for twelve months if necessary.

It is not necessary to arrange the eggs in any particular position, but care should be taken to avoid their breaking as they would pollute the solution, and for this reason only eggs having strong shells should be selected.

One gallon of fluid may be taken as approximately sufficient to treat about 250 eggs.

For eggs preserved on a large scale, clean glucose casks cut in half make efficient vessels, but they must be quite clean otherwise the Preservative will bring out the dirt and it might discolour the eggs.

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Eldest Son of the late William Cook, Originator of the Orpingtons.

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Customers requiring Specially Selected Breeding Pens of 1912 or 1913 hatched birds that will produce unequalled layers, hardy stock and of good type to start a foundation stud, are recommended to have our No. 2 pen of seven birds for £3. Hundreds of these pens have been sold, and given entire satisfaction. To those requiring a pen of more typical birds we recommend our No. 1 pen for £4 4s. These are capable of producing quite good stock and all are remarkable tested layers.

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Good Breeding Cockerels from 21s., 30s., and 42s. each.

Exhibition Cockerels fit for showing from 42s. up to £10 each, according to competition bird has to meet, also Hens and Pullets from 21s., 30s., 40s., to £8 8s. each and upwards.

Good Breeding Trios, carefully mated for producing high-class stock, at £5 5s., £10 10s., and £21 the three birds.

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All the above are hardy stock and reliable Breeders, being raised and bred in open-fronted houses on large grass runs and fields, and are second to none for laying, whilst their respective strain is the most reliable in England, as severe tests have proved.

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THE POULTRY CLUB.

The Monthly Meeting of the Council was held on January 9th, at the London Chamber of Commerce, Oxford Court, Cannon Street, London, E.C. Mr. G. Thrwitt-Drake occupied the Chair until the arrival of Mr. L. C. Verry. There were also present Dr. S. E. Dunkin, Rev. F. Burnett, and Messrs. W. Clarke, W. Rice, Walter Buxton, A. C. Powell, R. Fletcher Hearnshaw, P. H. Bayliss, W. J. Golding, J. Stephen Hicks, J. Carlton Hunting, Harold Corrie, and T. Threlford, Hon. Secretary.

The Minutes of the last Meeting were read and confirmed.

New members. The following New Members were elected:—

Recommended by the Cheshire Branch—

Mr. Frederick Darragh, Glenside, Leasowe.

Recommended by the Essex Branch—

Mr. Sidney G. Hough, Spring House, Theydon Bois.

Mr. Albert J. Thompson, Sheperds Farm, Chigwell Row.

Mr. A. W. Davis, 20, Suffolk Street, Forest Gate.

Mr. L. Grimwood, 28, Lea Hall Road, Leyton.

Recommended by the Hampshire Branch—

Mr. John Charles Edmunds, Wick, Bournemouth.

Mr. A. L. Kiddle, Homelands, Woodmill Lane, Bitterne, Southampton.

Recommended by the Kent Branch—

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Mr. J. Nicholas Lewis, Bingham Hotel, 5, Southampton Buildings, Chancery Lane, W.C.

Mr. G. G. Plumbridge, 131, St. Stephen's Road, Hounslow.

Mr. W. H. Wells, 78, Elthorne Park Road, Hanwell.

The Utility Poultry Club Year Book & Register, 1914.

The Year Book—220 pages—which is issued from the publishing office of the Club, 68b, Lincoln's Inn Fields, W.C., is now in its 16th year of issue, and contains, as usual, a mine of information of interest to those connected with the poultry industry.

Full particulars are given of the great Twelve Month's Laying Competition held in 1912-13 by means of a grant of £500 from the development Fund, together with brief particulars of every laying competition held in this country. As appears from the Report of the Club two more laying Competitions are being held this year with the aid of further grants from the same source.

Among numerous features of interest is a reprint of the article by Mr. B. W. Horne (the President of the Club), on "Fox Hunting and Poultry Keeping," which appeared in Bailey's Magazine; Statistics of Eggs and Poultry specially contributed by Mr. Edward Brown, F.L.S.; a list of Articles of interest appearing in the Press throughout the year; while the valuable monthly notes for Poultry Keepers and a mass of other useful information are retained.

The Register of Breeds giving particulars of strain, locality and housing conditions of over 1000 pens of utility stock kept by members is indispensable to those who specialise in laying strains.

For those who require advice on any point connected with poultry keeping there is a very influential committee of members called the Advisory Board comprising 30 experts, mostly lecturers to the various County Councils who deal with all enquiries gratuitously.

It is quite clear from a perusal of the annual report which is given in the book that the Utility Poultry Club is doing very valuable work for the poultry industry in this country and we think with such a small subscription as 2/6 (which includes a copy of the book), the present membership of 1400 should be largely increased.

Christmas Poultry.

Last Christmas an interesting experiment was made by the *Cradoc Co-operative Society* in organising the Christmas supply of poultry in the Cardigan and Newcastle-Emlyn districts. Some £110 worth of produce has been sold, and it is thought that the experiment is a decided success. The result has been that the prices for poultry in the district have been improved, and these better prices have been obtained by producers, who are not members of the society, as well as by those who initiated the attempt to organise the market. Mr. Walter Williams, the A.O.S. organiser for South Wales, made some interesting comments on this experiment to the representative of the *Brecon and Radnor Express*. He pointed out that the moral must be drawn that it is possible to organise the Christmas poultry trade with advantage to both producer and consumer, and suggested that in various districts producers should arrange for their produce to be brought to the depôts of agricultural co-operative societies on certain dates, when buyers could come to inspect and buy for sending direct to their customers in the populous districts of Glamorganshire. The opinion is expressed that the quality of the produce in the Brecon neighbourhood is of the best, but owing to lack of organisation, it passes through so many hands after leaving the farmer that by the time it reaches the consumer its condition has often deteriorated. By organisation it would be possible to regulate the supply, consumers would be benefited by being able to buy better and fresher poultry, and producers by obtaining higher prices.—*Co-operation in Agriculture*.

What others think.

One of the main factors in the success of the English breeders lies in the climate. Few parts of America enjoy such favourable conditions in this respect. In some parts of England snow is almost unknown, chickens are hatched very largely in January, and run about free in the open from the first, seldom having to be confined for snow for more more than three to ten days during the entire winter, and never having to be reared in confinement owing to cold, and as a result the chickens are well grown when spring comes, and just as the frame and bone are developing from the chicken stage to form to mature cockerel or pullet, the cool, fresh, sunshiny days are all that is needed plus good food and management to produce the fine exhibition stock. By the time the hot weather sets in, the birds are over the critical stage without a check in growth, and the whole art of growing a perfect show specimen lies in the ability to keep the animal and bird growing from start to finish without a single stop.

Another factor in the reason why the average English stock seems in advance is that the English as a rule do not go in for breeding on the immense scale of breeders abroad. On a poultry farm in America you will find thousands, where in England you will scarcely find hundreds. This gives the operator more time for individual attention, greater care is bestowed on continually keeping the stock free from all insect pests. Animals and birds can be divided up and grown under better conditions, giving to each more room and a larger share of the best foods, and in poultry especially, better housing conditions with more air, and even a plant if grown under the proper conditions of air, light individual attention will excel the plant grown in stuffy, confined quarters, and so exactly it will prove with bird or beast.—*American Poultry Journal*.

An Opportunity.

It is said that only one-third of the turkeys that were eaten last Christmas in Great Britain were bred in the country. "Here's a fine opportunity for a New Year's resolution among our agriculturists," says the *Co-operative News*.

Guinea-fowls—Forward Please.

The Fish Trades Gazette gives the retailers the following advice. "Look out for guinea-fowls this year. They will be as scarce as poppies in winter, and should you know of any farmer who is far-sighted enough to breed these birds, go and make a contract with him at once for the purchase of the lot. This hint should be worth something to our readers, and if they secure at anything between 2s. 6d. and 3s.—well, let them thank *The Fish Trades Gazette*, and us for putting a few pounds in their pockets.

TRADE ITEMS.**A New Egg Box.**

The new form of egg box manufactured by "The Ideal Packing and Case Manufacturing Co." of Timber Bush, Leith, has many commendable features. The factors making for success are lightness, safety of contents in transit, adequate ventilation, easy packing and unpacking, and lastly a reasonable price. The principle of construction ensures a maximum of resiliency yet at the same time the contents are kept in position, hence there is no danger of breakage; the cases all built open to allow a constant current of air passing around each egg. The boxes are light and very strong, and the price is right. Constructed as they are their life should be considerably longer than that of many other light cases. The same firm has also placed on the market special cases and crates for the conveyance of bottles and jars, which are equally as successful as those designed for carrying eggs.

The New Season's Catalogues.

W. Tamlin, 40, St. Margaret's Works, Twickenham, London, the maker of "The Mother of Millions" incubator, as it is sometimes called, has recently issued his annual catalogue of upwards of 140 pages. As usual, it teems with useful information and one can find something on every page that attracts the attention. All of the appliances that are turned out by the St. Margaret's Works are soundly constructed and built on correct scientific principles. The greater number of the various goods depicted have stood the test of years and have not failed to give satisfaction in all parts of the globe. This catalogue is sent free of charge to all applicants.

Robert Miller, Sterlingshire Poultry Farm, Denny, N.B. Mr. Miller is not only an appliance maker, but also a poultry farmer in addition. The facts that are learnt in working the latter are embodied in the former, therefore purchasers from this firm know exactly what they are buying. The 1914 catalogue, just issued, tells in some 70 odd pages, in a bright way all about these two sides of the great business, and, therefore, it would be advisable for all poultry keepers to avail themselves of Mr. Miller's offer to send a copy free of charge.

Messrs. R. Toope & Co.'s Exports.

Messrs. Toopes' sales for January have been one 4,000 oil heated Mammoth to Australia, one 3,000 ditto to Sweden, one 5,000 ditto to New Zealand. Five Baby Mammoth (three decker) Incubators of 300 to 750 capacities to our agent in New Zealand; two 300 ditto to Australia and one to Rhodesia. 178 Asbestic Hen Incubators of from 60 to 200 sizes, also 342 various brooders between our agents in Christiana, Sweden, Brussels, Paris, Geneva, Italy, Bulgaria, Greece, Calcutta, Ceylon, Straits, Sierra Leone, Gold Coast, Buenos Aires, Monte Video, Brazil, New Zealand, Java, Fiji, Hawaii, Mauritius, Jamaica, Panama, Mexico, Japan, Shanghai, Tien Tsein, Hong Kong, Egypt, Nigeria, Morocco, Gibraltar, Barcelona, Lisbon, Munich, and Amsterdam, also various goods such as troughs, founts, hoppers, whitewash sprayers, &c., to the Falkland Islands, Patagonia, Chili, Columbia, Peru, Graham Islands, Tonga, Cuba, and the Phillipines.

OUR BOOK MARKET.

Any of the following books will be supplied at the prices named. Cash must always accompany orders.

Amateur Poultry - Keeper. By W. M. ELKINGTON. 120 pages. Fifteen illustrations. Price, 1/2 post free.

Incubators and their Management. By J. H. SUTCLIFFE. Fifth Edition. Illustrated. Price, post free, 1/2.

Lett's Poultry - Keeper's Account Book. Edited by LEWIS WRIGHT. Cr. 8vo. Post free in the United Kingdom, the Colonies, and foreign countries, 2/8.

Poultry and Egg Raising at Home. By W. M. ELKINGTON. Illustrated. Price, post free 1/2.

Poultry Culture for Profit. By Rev. T. W. STURGES, M.A. Third Edition. Cr. 8vo, 134 pages. Fully illustrated. Post free in the United Kingdom, the Colonies, and foreign countries, paper covers, 1/3; cloth, 1/9.

Poultry Fattening. By EDWARD BROWN, F.L.S. Fifteen illustrations, 120 pages. Price, 1/2 post free.

Poultry for Prizes and Profit. By JAMES LONG. New Edition. Revised by W. M. ELKINGTON. Illustrated. Post free 6/4 in the United Kingdom; in the Colonies and abroad, 7/6.

Poultry-Keeping as an Industry for Farmers and Cottagers. By EDWARD BROWN, F.L.S., Secretary of the National Poultry Organisation Society. Sixth Edition. 4to, 206 pages, fully illustrated. Post free in the United Kingdom, 6/6; 6/9 to the Colonies and foreign countries.

Progressive Poultry Culture. By ARTHUR A. BRIGHAM, B.S., Ph.D. Illustrated. 300 pages. Post free, 6/6.

The Practical Poultry-Keeper. By LEWIS WRIGHT. Cr. 8vo, 320 pages, with eight coloured plates and other illustrations. Post free in the United Kingdom, 3/10; 4/- to the Colonies and foreign countries.

Races of Domestic Poultry. By EDWARD BROWN, F.L.S., Secretary of the National Poultry Organisation Society. 4to, 234 pages, with chapters on breeding, fully illustrated. Post free in the United Kingdom, 6/6; 6/9 to the Colonies and foreign countries.

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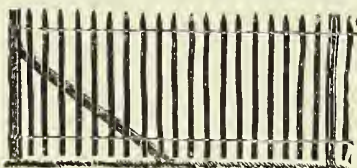
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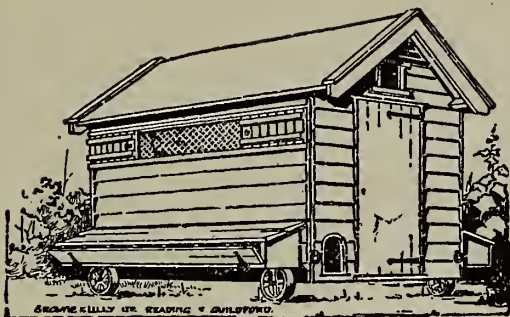
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APPLY TO

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Atlantic House, Holborn Viaduct, E.C.

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8th December, 1913.

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